



## Sulfur Dioxide Basics

- What is SO<sub>2</sub> and how does it get in the air?
- What are the harmful effects of SO<sub>2</sub>?
- What is being done to reduce SO<sub>2</sub> pollution?

## What is SO<sub>2</sub> and how does it get in the air?

### What is SO<sub>2</sub>?

EPA's national ambient air quality standards for SO<sub>2</sub> are designed to protect against exposure to the entire group of sulfur oxides (SO<sub>x</sub>). SO<sub>2</sub> is the component of greatest concern and is used as the indicator for the larger group of gaseous sulfur oxides (SO<sub>x</sub>). Other gaseous SO<sub>x</sub> (such as SO<sub>3</sub>) are found in the atmosphere at concentrations much lower than SO<sub>2</sub>.

Control measures that reduce SO<sub>2</sub> can generally be expected to reduce people's exposures to all gaseous SO<sub>x</sub>. This may have the important co-benefit of reducing the formation of particulate SO<sub>x</sub> such as fine sulfate particles.

Emissions that lead to high concentrations of SO<sub>2</sub> generally also lead to the formation of other SO<sub>x</sub>. The largest sources of SO<sub>2</sub> emissions are from fossil fuel combustion at power plants and other industrial facilities.

### How does SO<sub>2</sub> get in the air?

The largest source of SO<sub>2</sub> in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities. Smaller sources of SO<sub>2</sub> emissions include: industrial processes such as extracting metal from ore; natural sources such as volcanoes; and locomotives, ships and other vehicles and heavy equipment that burn fuel with a high sulfur content.

## What are the harmful effects of SO<sub>2</sub>?

SO<sub>2</sub> can affect both health and the environment.

### What are the health effects of SO<sub>2</sub>?

Short-term exposures to SO<sub>2</sub> can harm the human respiratory system and make breathing difficult. Children, the elderly, and those who suffer from asthma are particularly sensitive to effects of SO<sub>2</sub>.

SO<sub>2</sub> emissions that lead to high concentrations of SO<sub>2</sub> in the air generally also lead to the formation of other sulfur oxides (SO<sub>x</sub>). SO<sub>x</sub> can react with other compounds in the atmosphere to form small particles. These particles contribute to particulate matter (PM) pollution: particles may penetrate deeply into sensitive parts of the lungs and cause additional health problems.

- [Learn more about particulate matter](#)

## What are the environmental effects of SO<sub>2</sub> and other sulfur oxides?

At high concentrations, gaseous SO<sub>x</sub> can harm trees and plants by damaging foliage and decreasing growth.

SO<sub>2</sub> and other sulfur oxides can contribute to acid rain which can harm sensitive ecosystems.

- [Learn more about acid rain](#)

## Visibility

SO<sub>2</sub> and other sulfur oxides can react with other compounds in the atmosphere to form fine particles that reduce visibility (haze) in parts of the United States, including many of our treasured national parks and wilderness areas.

- [Learn more about visibility and regional haze](#)

Deposition of particles can also stain and damage stone and other materials, including culturally important objects such as statues and monuments.

## What is being done to reduce SO<sub>2</sub> pollution?

EPA's national and regional rules to reduce emissions of SO<sub>2</sub> and pollutants that form sulfur oxides (SO<sub>x</sub>) will help state and local governments meet the Agency's national air quality standards.

- [Learn about how air quality standards help reduce SO<sub>2</sub>](#)

EPA identifies areas where the air quality does not meet EPA SO<sub>2</sub> standards. For these areas, state, local, and tribal governments develop plans to reduce the amount of SO<sub>2</sub> in the air.

- [Learn more about SO<sub>2</sub> air quality designations and state implementation plans \(SIPs\)](#)





## Particulate Matter (PM) Basics

On This Page:

- What is PM, and how does it get into the air?
- What are the harmful effects of PM?
- What is being done to reduce particle pollution?
  - How can I reduce my exposure to PM?

### What is PM, and how does it get into the air?



### Size comparisons for PM particles

PM stands for particulate matter (also called particle pollution): the term for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope.

Particle pollution includes:

- **PM<sub>10</sub>** : inhalable particles, with diameters that are generally 10 micrometers and smaller; and
- **PM<sub>2.5</sub>** : fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.
  - How small is 2.5 micrometers? Think about a single hair from your head. The average human hair is about 70 micrometers in diameter – making it 30 times larger than the largest fine particle.

### Sources of PM

These particles come in many sizes and shapes and can be made up of hundreds of different chemicals.

Some are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks or fires.

Most particles form in the atmosphere as a result of complex reactions of chemicals such as sulfur dioxide and nitrogen oxides, which are pollutants emitted from power plants, industries and automobiles.

## What are the Harmful Effects of PM?

Particulate matter contains microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems. Particles less than 10 micrometers in diameter pose the greatest problems, because they can get deep into your lungs, and some may even get into your bloodstream.

Fine particles (PM<sub>2.5</sub>) are the main cause of reduced visibility (haze) in parts of the United States, including many of our treasured national parks and wilderness areas.

[Learn more about health and environmental effects](#)

## What is Being Done to Reduce Particle Pollution?

EPA regulates inhalable particles. Particles of sand and large dust, which are larger than 10 micrometers, are not regulated by EPA.

EPA's national and regional rules to reduce emissions of pollutants that form PM will help state and local governments meet the Agency's national air quality standards. [Learn about how air quality standards help reduce PM.](#)

## How Can I Reduce My Exposure to PM?

You can use air quality alerts to protect yourself and others when PM reaches harmful levels:

[AirNow](#): Every day the Air Quality Index (AQI) tells you how clean or polluted your outdoor air is, along with associated health effects that may be of concern. The AQI translates air quality data into numbers and colors that help people understand when to take action to protect their health.

- Go to [About AirNow](#) to learn how you can get AQI notifications.
- Also learn how the [Air Quality Flag Program](#) can help air agencies, schools, and other community organizations to notify their citizens of harmful conditions and adjust outdoor physical activities as needed.

## **Fact Sheet for Open House on EPA's Clean Air Plan Proposal for Texas Regional Haze**

January 10, 2017, Joe C. Thompson Conference Center, Austin, Texas

### **To view our proposal or submit a comment:**

Our proposal was published in the Federal Register on January 4, 2017. It can be found on the internet at [www.regulations.gov](http://www.regulations.gov) (in [www.regulations.gov](http://www.regulations.gov), search for Docket number EPA-R06-OAR-2016-0611, then find document number EPA-R06-OAR-2016-0611-0001 which is the proposal). Comments may be submitted electronically through [www.regulations.gov](http://www.regulations.gov), emailed to [R6\\_TX-BART@epa.gov](mailto:R6_TX-BART@epa.gov), or submitted at today's public hearing. Comments must be received on or before March 6, 2017.

Our proposal involves our review of certain portions of Texas' plans for improving regional haze, and for controlling the transport of pollution that would impair visibility in other states. This includes proposing air pollution controls for 16 Texas coal-fired power plant units. Some of the main points of our proposal are included below.

### **Regional Haze**

EPA and states must carry out Congress's direction under the federal Clean Air Act (CAA) sections 169A and 169B to improve visibility at certain national parks and wilderness areas, known as Class I areas. This includes a requirement to determine and implement the the Best Available Retrofit Technology (BART) for certain older sources of pollution that contribute to problems of haze and visibility impairment.

- Texas' regional haze State Implementation Plan (SIP) relied on participation in our Clean Air Interstate Rule (CAIR) as an alternative to meeting the source-specific BART requirements for sulfur dioxide and nitrogen oxides for power plants. At the time that Texas submitted its SIP to EPA, however, the D.C. Circuit Court had remanded CAIR (without vacating the rule) back to EPA.
- EPA intended to replace CAIR with the Cross State Air Pollution Rule (aka CSAPR). A number of states, including Texas, challenged CSAPR in court. On July 28, 2015, the D.C. Circuit issued a decision generally upholding CSAPR but remanding without vacating the CSAPR emissions budgets for a number of states, including Texas.
- We had earlier proposed to rely on CSAPR participation to address these BART-related deficiencies in Texas' SIP submittals. Because of the uncertainty caused by the D.C. Circuit Court's partial remand, however, we could not finalize that action. We are in the process of responding to the remand of these CSAPR budgets.
- On October 26, 2016, we finalized an update to the CSAPR rule that addresses the 1997 ozone NAAQS portion of the remand and the requirements of CAA section 110(a)(2)(D)(i)(I) for the 2008 ozone NAAQS. This rule promulgated a new FIP for Texas



that replaced the CSAPR ozone season NO<sub>x</sub> emission budget designed to address the 1997 ozone NAAQS for the State with a revised budget designed to address the requirements of CAA section 110(a)(2)(D)(i)(I) for the 2008 ozone NAAQS.

- On November 10, 2016, we proposed to withdraw the FIP provisions that require affected power plants in Texas to participate in CSAPR for annual emissions of SO<sub>2</sub> and NO<sub>x</sub> with regard to emissions after 2016. Withdrawal of these FIP requirements will address the D.C. Circuit's remand of the CSAPR Phase 2 SO<sub>2</sub> budget for Texas.
- We are proposing that Texas' Phase 2 ozone season NO<sub>x</sub> participation will provide it with NO<sub>x</sub> BART coverage for power plants. However, in expectation that Texas would no longer be included in CSAPR for SO<sub>2</sub>, Texas will no longer have SO<sub>2</sub> BART coverage. We are also unable to propose approval of the Texas Regional Haze SIP's PM BART evaluation, as previously proposed, as that demonstration made underlying assumptions that are no longer valid with the withdrawal of the CSAPR SO<sub>2</sub> budgets.
- The State of Texas has not acted to adopt an SO<sub>2</sub> budget that would allow us to approve an SO<sub>2</sub> BART alternative, or to submit a SIP to otherwise address the outstanding PM and SO<sub>2</sub> BART requirements. As a result, the Clean Air Act requires the EPA to address the requirements with a federal implementation plan (FIP). The proposed FIP includes BART screening of sources and a source-by-source analysis for SO<sub>2</sub> and PM BART and controls for these pollutants as appropriate.

### **Our Proposed Federal Implementation Plan**

- Under the Clean Air Act, we must propose a Federal Implementation Plan to address those parts of the Texas plan we propose to disapprove and previously disapproved.
- Our proposed plan will improve visibility and protect human health.
- We propose SO<sub>2</sub> emission limits for 29 Electricity Generating Units (EGUs). This includes emission limits corresponding to the installation of Sulfur Dioxide (SO<sub>2</sub>) scrubbers at 12 EGUs, emission limits corresponding to the upgrading of scrubbers at 4 EGUs, and an emission limit corresponding to the maintenance of scrubbers at 2 EGUs.
- We propose PM limits for 11 EGUs that either fire gas exclusively, or fire gas in conjunction with fuel oil. We do not anticipate that any additional controls will be needed.
- Our proposed limits are expected to reduce emissions of SO<sub>2</sub> from 16 EGUs and would cut emissions from approximately 89 to 98 percent. We estimate our FIP will result in a reduction of over 194,000 tons of SO<sub>2</sub> per year.
- We propose that these 16 units be required to meet the SO<sub>2</sub> emission limits listed in the following table. These emissions limits would have to be met on the basis of a 30 boiler operating day, which is similar to a monthly average, but considers the time the boiler actually operates each month. Compliance would be within 3 years for those units with SO<sub>2</sub>

emission limits corresponding to scrubber upgrades, and within 5 years for those units with SO<sub>2</sub> emission limits corresponding to scrubber retrofits. Compliance would be required within one year for the Fayette units, as we do not expect that they will have to install any additional controls.

	Unit	Proposed SO <sub>2</sub> emission limit (lbs/MMBtu)
<b>Scrubber Upgrades</b>	Martin Lake 1	0.12
	Martin Lake 2	0.12
	Martin Lake 3	0.11
	Monticello 3	0.05
<b>Scrubber Retrofits</b>	Big Brown 1	0.04
	Big Brown 2	0.04
	Monticello 1	0.04
	Monticello 2	0.04
	Coleto Creek 1	0.04
	Fayette 1	0.04
	Fayette 2	0.04
	Harrington 061B	0.06
	Harrington 062B	0.06
	J T Deely 1	0.04
	J T Deely 2	0.04
	W A Parish 5	0.04
	W A Parish 6	0.04
	Welsh 1	0.04

- We believe SO<sub>2</sub> scrubbers and scrubber upgrades are a cost effective way to improve visibility.
- SO<sub>2</sub> is toxic and can react with other chemicals to form small particles, which are harmful to public health. SO<sub>2</sub> can cause adverse respiratory effects include narrowing of the airways which can cause difficulty breathing (bronchoconstriction) and increased asthma symptoms.
- We are proposing monitoring, record-keeping, and reporting requirements to ensure compliance with these emission limitations.



## **Interstate Transport of Visibility Impairing Pollution**

EPA must carry out Congress's direction under the federal Clean Air Act that States prohibit sources from emitting air pollution which interferes with other States' efforts to protect visibility.

We believe that the controls proposed under our FIP will satisfy this the Clean Air Act requirement prohibiting a State's sources from emitting air pollution which interferes with other States' efforts to protect visibility.

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 52**

**[EPA-R06-OAR-2016-0611; FRL-9955-77-Region 6]**

**Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and  
Interstate Visibility Transport Federal Implementation Plan**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** Pursuant to the Federal Clean Air Act (CAA or Act), the Environmental Protection Agency (EPA) is proposing to promulgate a Federal Implementation Plan (FIP) in Texas to address the remaining outstanding requirements that are not satisfied by the Texas Regional Haze State Implementation Plan (SIP) submission. Specifically, the EPA proposes SO<sub>2</sub> limits on 29 Electric Generating Units (EGUs) located at 14 Texas facilities to fulfill requirements for the installation and operation of the Best Available Retrofit Technology (BART) for SO<sub>2</sub>. To address the requirement for NO<sub>x</sub> BART for Texas EGU sources, we are proposing a FIP that relies upon two other EPA rulemakings, one already final and one proposed, which together will establish that participation in the Cross-State Air Pollution Rule (CSAPR) continues to qualify as an alternative to NO<sub>x</sub> BART for EGUs in Texas. We also are proposing to disapprove the portion of the Texas Regional Haze SIP that addresses the BART requirement for EGUs for Particulate Matter (PM) and proposing a FIP with PM BART limits for EGUs at 29 EGUs located at 14 Texas facilities, based on existing practices and control capabilities. In

addition, we propose to reconsider and re-propose disapproval of portions of several SIP revisions submitted to satisfy the requirement to address interstate visibility transport for six NAAQS (1) 1997 8-hour ozone, (2) 1997 PM<sub>2.5</sub> (annual and 24 hour), (3) 2006 PM<sub>2.5</sub> (24-hour), (4) 2008 8-hour ozone, (5) 2010 1-hour NO<sub>2</sub> and (6) 2010 1-hour SO<sub>2</sub> and we propose that the FIP emission limits we are proposing meet the interstate visibility transport requirements for these NAAQS.

**DATES:** *Comments:* Comments must be received on or before **[Insert date 60 days from date of publication in the Federal Register]**.

*Public Hearing:*

We are holding an information session, for the purpose of providing additional information and informal discussion for our proposal. We are also holding a public hearing to accept oral comments into the record:

Date: Tuesday, January 10, 2017

Time: Open House: 1:30 p.m. - 3:30 p.m.

Public hearing: 4:00 p.m. – 8:00 p.m. (including short break)

Location: Joe C. Thompson Conference Center

(on the University of Texas (UT) Campus)

Room 3.102

2405 Robert Dedman Drive

Austin, Texas 78712



For additional logistical information regarding the public hearing please see the **SUPPLEMENTARY INFORMATION** section of this action.

**ADDRESSES:** Submit your comments, identified by Docket No. EPA-R06-OAR-2016-0611, at <http://www.regulations.gov> or via email to [R6\\_TX-BART@epa.gov](mailto:R6_TX-BART@epa.gov). Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, please contact Joe Kordzi, 214-665-7186, [Kordzi.joe@epa.gov](mailto:Kordzi.joe@epa.gov). For the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <http://www2.epa.gov/dockets/commenting-epa-dockets>.

*Docket:* The index to the docket for this action is available electronically at <http://www.regulations.gov> and in hard copy at the EPA Region 6, 1445 Ross Avenue, Suite 700, Dallas, Texas. While all documents in the docket are listed in the index, some information may be publicly available only at the hard copy location (e.g., copyrighted material), and some may not be publicly available at either location (e.g., CBI).

The Texas regional haze SIP is available online at:

[https://www.tceq.texas.gov/airquality/sip/bart/haze\\_sip.html](https://www.tceq.texas.gov/airquality/sip/bart/haze_sip.html). It is also available for public inspection during official business hours, by appointment, at the Texas Commission on Environmental Quality, Office of Air Quality, 12124 Park 35 Circle, Austin, Texas 78753.

**FOR FURTHER INFORMATION CONTACT:** Joe Kordzi, Air Planning Section (6PD-L), Environmental Protection Agency, Region 6, 1445 Ross Avenue, Suite 700, Dallas, Texas 75202-2733, telephone 214-665-7186; fax number 214-665-7263; e-mail address [Kordzi.joe@epa.gov](mailto:Kordzi.joe@epa.gov).

**SUPPLEMENTARY INFORMATION:** Throughout this document wherever “we,” “us,” or “our” is used, we mean the EPA.

Joe C. Thompson Conference Center parking is adjacent to the building in Lot 40, located at the intersection of East Dean Keeton Street and Red River Street. Additional parking is available at the Manor Garage, located at the intersection of Clyde Littlefield Drive and Robert Dedman Drive. If arranged in advance, the UT Parking Office will allow buses to park along Dedman Drive near the Manor Garage for a fee.

The public hearing will provide interested parties the opportunity to present information and opinions to us concerning our proposal. Interested parties may also submit written comments, as discussed in the proposal. Written statements and supporting information submitted during the comment period will be considered with the same weight as any oral comments and supporting information presented at the public hearing. We will not respond to comments during the public hearing. When we publish our final action, we will provide written responses to all significant

oral and written comments received on our proposal. To provide opportunities for questions and discussion, we will hold an information session prior to the public hearing. During the information session, EPA staff will be available to informally answer questions on our proposed action. Any comments made to EPA staff during an information session must still be provided orally during the public hearing, or formally in writing within 30 days after completion of the hearings, in order to be considered in the record.

At the public hearings, the hearing officer may limit the time available for each commenter to address the proposal to three minutes or less if the hearing officer determines it to be appropriate. We will not be providing equipment for commenters to show overhead slides or make computerized slide presentations. Any person may provide written or oral comments and data pertaining to our proposal at the public hearings. Verbatim English language transcripts of the hearing and written statements will be included in the rulemaking docket.

**Table of Contents:**

## I. Background

## II. Overview of Proposed Actions

## A. Regional Haze

## B. Interstate Transport of Pollutants that Affect Visibility

## C. Our Authority to Promulgate a FIP

III. Our Proposed BART Analyses for SO<sub>2</sub> and PM

- A. Identification of BART-Eligible Sources
- B. Identification of Sources that are Subject to BART
  - 1. Our use of the Standard BART Model Plant Exemption
  - 2. Our Extension of the BART Model Plant Exemption
  - 3. Our use of CALPUFF Modeling to Exempt Sources from Being Subject to BART
  - 4. Our use of CAMx Modeling to Exempt Sources from Being Subject to BART
  - 5. Summary of Sources that are Subject to BART
- C. Our BART Five Factor Analyses
  - 1. Steps 1 and 2: Technically Feasible SO<sub>2</sub> Retrofit Controls
    - a. Identification of Technically Feasible SO<sub>2</sub> Retrofit Control Technologies for Coal Fired Units
    - b. Identification of Technically Feasible SO<sub>2</sub> Retrofit Control Technologies for Gas-Fired Units that Burn Oil
    - c. Identification of Technically Feasible SO<sub>2</sub> Control Technologies for Scrubber Upgrades
  - 2. Step 3: Evaluation of Control Effectiveness
    - a. Evaluation of SO<sub>2</sub> Control Effectiveness for Coal Fired Units
    - b. Evaluation of SO<sub>2</sub> Control Effectiveness for Gas Fired Units
  - 3. Step 4: Evaluate Impacts and Document the Results for SO<sub>2</sub>
    - a. Impact Analysis Part 1: Cost of Compliance for DSI, SDA, and Wet FGD
    - b. Impact Analysis Part 1: Cost of Compliance for Scrubber Upgrades
    - c. Impact Analysis Part 1: Cost of Compliance for Gas Units that Burn Oil

4. Impact Analysis Parts 2, 3, and 4: Energy and Non-air Quality Environmental Impacts, and Remaining Useful Life

5. Step 5: Evaluate Visibility Impacts

- a. Visibility Benefits of DSI, SDA, and Wet FGD for Coal-fired Units
- b. Visibility Benefits of Scrubber Upgrades for Coal-fired Units
- c. Visibility Benefits of Fuel Oil Switching for Gas/Fuel Oil-Fired Units

6. BART Five Factor Analysis for PM

D. How, if at all, Do Issues of “Grid Reliability” Relate to the Proposed BART Determinations?

IV. Our Weighing of the Five BART Factors

A. SO<sub>2</sub> BART for Coal-fired Units with no SO<sub>2</sub> Controls

- 1. Big Brown 1 & 2
- 2. Monticello 1 & 2
- 3. Coleto Creek 1
- 4. Welsh 1
- 5. Harrington 061B & 062B
- 6. W A Parish WAP 5 & 6
- 7. J T Deely 1 & 2

B. SO<sub>2</sub> BART for Coal-fired Units with Underperforming Scrubbers

C. SO<sub>2</sub> BART for Gas-fired Units that Burn Oil

D. PM BART

V. Proposed Actions

A. Regional Haze

1. NO<sub>x</sub> BART
2. SO<sub>2</sub> BART for Coal-fired Units
3. Potential Process for Alternative Scrubber Upgrade Emission Limits
4. SO<sub>2</sub> BART for Gas-fired Units that Burn Oil
5. PM BART

B. Interstate Visibility Transport

VI. Statutory and Executive Order Reviews

**I. Background**

Regional haze is visibility impairment that is produced by a multitude of sources and activities that are located across a broad geographic area and emit fine particulates (PM<sub>2.5</sub>) (e.g., sulfates, nitrates, Organic Carbon (OC), Elemental Carbon (EC), and soil dust), and their precursors (e.g., Sulfur Dioxide (SO<sub>2</sub>), Nitrogen Oxides (NO<sub>x</sub>), and in some cases, ammonia (NH<sub>3</sub>) and Volatile Organic Compounds (VOCs)). Fine particle precursors react in the atmosphere to form PM<sub>2.5</sub>, which impairs visibility by scattering and absorbing light. Visibility impairment reduces the clarity, color, and visible distance that can be seen. PM<sub>2.5</sub> can also cause serious health effects and mortality in humans and contributes to environmental effects such as acid deposition and eutrophication.

Data from the existing visibility monitoring network, the “Interagency Monitoring of Protected Visual Environments” (IMPROVE) monitoring network, show that visibility impairment caused by air pollution occurs virtually all the time at most national parks and wilderness areas. In 1999, the average visual range<sup>1</sup> in many Class I areas (i.e., national parks

---

<sup>1</sup> Visual range is the greatest distance, in kilometers or miles, at which a dark object can be viewed against the sky.

and memorial parks, wilderness areas, and international parks meeting certain size criteria) in the western United States was 100-150 kilometers, or about one-half to two-thirds of the visual range that would exist without anthropogenic air pollution. In most of the eastern Class I areas of the United States, the average visual range was less than 30 kilometers, or about one-fifth of the visual range that would exist under estimated natural conditions.<sup>2</sup> CAA programs have reduced some haze-causing pollution, lessening some visibility impairment and resulting in partially improved average visual ranges.<sup>3</sup>

CAA requirements to address the problem of visibility impairment are continuing to be addressed and implemented. In Section 169A of the 1977 Amendments to the CAA, Congress created a program for protecting visibility in the nation's national parks and wilderness areas. This section of the CAA establishes as a national goal the prevention of any future, and the remedying of any existing man-made impairment of visibility in 156 national parks and wilderness areas designated as mandatory Class I Federal areas.<sup>4</sup> On December 2, 1980, EPA promulgated regulations to address visibility impairment in Class I areas that is "reasonably attributable" to a single source or small group of sources, i.e., "reasonably attributable visibility impairment."<sup>5</sup> These regulations represented the first phase in addressing visibility impairment.

---

<sup>2</sup> 64 FR 35715 (July 1, 1999).

<sup>3</sup> An interactive "story map" depicting efforts and recent progress by EPA and states to improve visibility at national parks and wilderness areas may be visited at: <http://arcg.is/29tAbS3>.

<sup>4</sup> Areas designated as mandatory Class I Federal areas consist of National Parks exceeding 6000 acres, wilderness areas and national memorial parks exceeding 5000 acres, and all international parks that were in existence on August 7, 1977. 42 U.S.C. 7472(a). In accordance with section 169A of the CAA, EPA, in consultation with the Department of Interior, promulgated a list of 156 areas where visibility is identified as an important value. 44 FR 69122 (November 30, 1979). The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. 42 U.S.C. 7472(a). Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to "mandatory Class I Federal areas." Each mandatory Class I Federal area is the responsibility of a "Federal Land Manager." 42 U.S.C. 7602(i). When we use the term "Class I area" in this action, we mean a "mandatory Class I Federal area."

<sup>5</sup> 45 FR 80084 (December 2, 1980).

EPA deferred action on regional haze that emanates from a variety of sources until monitoring, modeling, and scientific knowledge about the relationships between pollutants and visibility impairment were improved.

Congress added section 169B to the CAA in 1990 to address regional haze issues, and we promulgated regulations addressing regional haze in 1999.<sup>6</sup> The Regional Haze Rule revised the existing visibility regulations to integrate into the regulations provisions addressing regional haze impairment and established a comprehensive visibility protection program for Class I areas. The requirements for regional haze, found at 40 CFR 51.308 and 51.309, are included in our visibility protection regulations at 40 CFR 51.300–309. The requirement to submit a regional haze SIP applies to all 50 states, the District of Columbia, and the Virgin Islands. States were required to submit the first implementation plan addressing regional haze visibility impairment no later than December 17, 2007.<sup>7</sup>

Section 169A of the CAA directs states to evaluate the use of retrofit controls at certain larger, often under-controlled, older stationary sources in order to address visibility impacts from these sources. Specifically, section 169A(b)(2)(A) of the CAA requires states to revise their SIPs to contain such measures as may be necessary to make reasonable progress toward the natural visibility goal, including a requirement that certain categories of existing major stationary sources<sup>8</sup> built between 1962 and 1977 procure, install and operate the “Best Available Retrofit Technology” (BART). Larger “fossil-fuel fired steam electric plants” are included among the BART source categories. Under the Regional Haze Rule, states are directed to conduct BART

---

<sup>6</sup> 64 FR 35714 (July 1, 1999), codified at 40 CFR part 51, subpart P (Regional Haze Rule).

<sup>7</sup> See 40 CFR 51.308(b). EPA’s regional haze regulations require subsequent updates to the regional haze SIPs. 40 CFR 51.308(g)–(i).

<sup>8</sup> See 42 U.S.C. 7491(g)(7) (listing the set of “major stationary sources” potentially subject-to-BART).



determinations for “BART-eligible” sources that may be anticipated to cause or contribute to any visibility impairment in a Class I area. The evaluation of BART for Electric Generating Units (EGUs) that are located at fossil-fuel fired power plants having a generating capacity in excess of 750 megawatts must follow the “Guidelines for BART Determinations Under the Regional Haze Rule” at appendix Y to 40 CFR Part 51 (hereinafter referred to as the “BART Guidelines”). Rather than requiring source-specific BART controls, states also have the flexibility to adopt an emissions trading program or alternative program as long as the alternative provides greater reasonable progress towards improving visibility than BART. To the extent a Regional Haze SIP does not meet CAA requirements to address BART, the CAA requires EPA to promulgate a FIP that makes the requisite determinations to ensure the BART requirement is satisfied, as applicable, for sources in the state.<sup>9</sup>

## **II. Overview of Proposed Actions**

### **A. Regional Haze**

On January 5, 2016, we took final action on nearly all portions of a Regional Haze SIP submittal submitted by the State of Texas on March 31, 2009.<sup>10</sup> In that final rule, we did not take action on the portion of the submittal that was intended to satisfy BART requirements for EGUs as mandated by 40 CFR 51.308(e). In an earlier, separate action, we issued a limited disapproval of the Texas Regional Haze SIP concerning EGU BART due to Texas’ reliance on the Clean Air

---

<sup>9</sup> See, 42 U.S.C. 7491(b)(2)(A)(citing the potential need for BART as determined by “the Administrator in the case of a plan promulgated under section 7410(c) of this title”).

<sup>10</sup> 81 FR 296 (January 5, 2016). A preliminary order of the Fifth Circuit Court of Appeals in Case No. 16-60118 was issued on July 15, 2016, and stayed the rule “in its entirety.” On December 2, 2016, the U.S. Department of Justice filed a motion for voluntary remand of the parts of the rule under challenge and consenting to continuation of the judicial stay for remanded parts of the rule. The motion also requested affirmance of the partial approvals of the Texas and Oklahoma SIPs and lifting of the stay as to those approvals. This motion is currently pending disposition.

Interstate Rule (CAIR).<sup>11</sup> The EGU BART requirements for NO<sub>x</sub> and SO<sub>2</sub> remain unmet following the limited disapproval, and Texas has not submitted a revised SIP to address the deficiencies. While we previously proposed to approve the portion of the Regional Haze SIP that was intended to address whether EGUs in Texas must install and operate BART for PM,<sup>12</sup> that part of the proposed action was not finalized.<sup>13</sup> In connection with changed circumstances on how Texas EGUs are able to satisfy NO<sub>x</sub> and SO<sub>2</sub> BART, we are now proposing to disapprove the portion of the Texas Regional Haze SIP that evaluated the PM BART requirement for EGUs. The FIP we are proposing today addresses the EGU BART requirement and addresses these deficiencies in the Texas Regional Haze SIP.

Texas' regional haze SIP relied on participation in CAIR as an alternative to meeting the source-specific BART requirements for SO<sub>2</sub> and NO<sub>x</sub>. *See* 40 CFR 51.308(e)(4) (2006). At the time that Texas submitted its SIP to EPA, however, the D.C. Circuit had remanded CAIR (without vacatur). *See North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir.), *modified*, 550 F.3d 1176 (D.C. Cir. 2008). The court thereby left CAIR and CAIR FIPs in place in order to "temporarily preserve the environmental values covered by CAIR" until we could, by rulemaking, replace CAIR consistent with the court's opinion.<sup>14</sup>

On August 8, 2011, we promulgated the Cross-State Air Pollution Rule (CSAPR), to

---

<sup>11</sup> The limited disapproval triggered the EPA's obligation to issue a FIP for Texas unless the State submitted an approvable SIP revision to correct the relevant deficiencies within 2 years of the final limited disapproval action. CAA section 110(c)(1); 77 FR 33641, 33654 (August 6, 2012).

<sup>12</sup> 79 FR 74817, 74851 (proposing to concur with screening analyses conducted by TCEQ including findings that no Texas EGUs are subject to BART for PM)

<sup>13</sup> 81 FR at 302 (January 5, 2016): "[W]e proposed to approve Texas' determination that for its EGUs no PM BART controls were appropriate, based on a screening analysis of the visibility impacts of from just PM emissions.....we have.....decided not to finalize our proposed approval of Texas' PM BART determination [for EGUs]."

<sup>14</sup> 550 F.3d at 1178.

replace CAIR.<sup>15</sup> In 2012, we issued a limited disapproval of the Texas regional haze SIP because of Texas' reliance on CAIR as an alternative to EGU BART for SO<sub>2</sub> and NO<sub>x</sub>.<sup>16</sup> We also determined that CSAPR would provide for greater reasonable progress than BART and amended the Regional Haze Rule to allow CSAPR participation as an alternative to source-specific SO<sub>2</sub> and NO<sub>x</sub> BART for EGUs.<sup>17</sup> CSAPR has been subject to extensive litigation, and on July 28, 2015, the D.C. Circuit issued a decision generally upholding CSAPR but remanding without vacating the CSAPR emissions budgets for a number of states in *EME Homer City Generation v. EPA*, 795 F.3d 118 (D.C. Cir.). Specifically, the court invalidated a number of the Phase 2 ozone-season NO<sub>x</sub> budgets and found that the SO<sub>2</sub> budgets for four states resulted in over-control for purposes of CAA section 110(a)(2)(D)(i)(I). The remand included Texas' ozone-season NO<sub>x</sub> budget and annual SO<sub>2</sub> budget.

We had earlier proposed to rely on CSAPR participation to address these BART-related deficiencies in Texas' SIP submittals.<sup>18</sup> Because of the uncertainty caused by the D.C. Circuit Court's partial remand, however, we determined that it was not appropriate to finalize our action. We are in the process of responding to the remand of these CSAPR budgets. On October 26, 2016, we finalized an update to the CSAPR rule that addresses the 1997 ozone NAAQS portion of the remand and the requirements of CAA section 110(a)(2)(D)(i)(I) for the 2008 ozone NAAQS.<sup>19</sup> This rule promulgated a new FIP for Texas that replaced the CSAPR ozone season

---

<sup>15</sup> 76 FR 48208.

<sup>16</sup> 77 FR 33641.

<sup>17</sup> While that rulemaking also promulgated FIPs for several states to replace reliance on CAIR with reliance on CSAPR as an alternative to BART, it did not include a FIP for Texas. 77 FR 33641, 33654.

<sup>18</sup> 79 FR 74817, 74823 (December 16, 2014).

<sup>19</sup> "Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS." 81 FR 74504. The relevant portion of the remand pertained to the Phase 2 ozone season NO<sub>x</sub> emission budget designed to address the 1997 ozone NAAQS. In response to the remand, in this final rule the EPA removed the regulatory requirement for sources in Texas to comply with the phase 2 ozone season NO<sub>x</sub> budget calculated to address the 1997 ozone standard because we

NO<sub>x</sub> emission budget designed to address the 1997 ozone NAAQS for the State with a revised budget designed to address the requirements of CAA section 110(a)(2)(D)(i)(I) for the 2008 ozone NAAQS. Then, on November 10, 2016, we proposed to withdraw the FIP provisions that require affected EGUs in Texas to participate in CSAPR for annual emissions of SO<sub>2</sub> and NO<sub>x</sub> with regard to emissions after 2016.<sup>20</sup> Withdrawal of these FIP requirements will address the D.C. Circuit's remand of the CSAPR Phase 2 SO<sub>2</sub> budget for Texas. This recently published proposed rule includes an assessment of the impacts of the set of actions that the EPA has taken or expects to take in response to the D.C. Circuit's remand on our 2012 demonstration that participation in CSAPR would provide for greater reasonable progress than BART.

In 2012, we determined that CSAPR is "better-than-BART" based on a comparison of projected visibility in scenarios representing CSAPR implementation and BART implementation, as well as a base case without CSAPR or BART, in relevant locations throughout the country. In the case of the remanded Phase 2 ozone-season NO<sub>x</sub> budgets, eight of the states with remanded budgets (including Texas) will continue to be subject to CSAPR to address ozone transport obligations with regard to the more stringent 2008 ozone NAAQS, and North Carolina and South Carolina, although no longer covered by CSAPR to address ozone transport obligations, will continue to be subject to CSAPR annual NO<sub>x</sub> requirements in order to address their PM<sub>2.5</sub> transport obligations. In considering the potential impact of the remand of

---

determined that no additional emission reductions from sources in Texas are necessary to address the State's obligation under 110(a)(2)(D)(i)(I) for the 1997 ozone NAAQS. However, because Texas is linked to downwind air quality problems with respect to the 2008 ozone NAAQS, we promulgated a new ozone season NO<sub>x</sub> emission budget to address that standard. 81 FR 74504, 74600-74601.

<sup>20</sup> "Interstate Transport of Fine Particulate Matter: Revision of Federal Implementation Plan Requirements for Texas," 81 FR 78954 (November 10, 2016). Although the court's decision specifically remanded only Texas' SO<sub>2</sub> budget, the court's rationale for remanding that budget also implicates Texas' annual NO<sub>x</sub> budget because the SO<sub>2</sub> and annual NO<sub>x</sub> budgets were developed through an integrated analysis and were promulgated to meet a common PM<sub>2.5</sub> transport obligation under CAA section 110(a)(2)(D)(i)(I).

Phase 2 budgets on the 2012 CSAPR-Better-than-BART analytic demonstration, we therefore believe that only two changes have potential relevance: the withdrawal of the FIP provisions subjecting Florida EGUs to CSAPR ozone-season NO<sub>x</sub> requirements that has already been finalized, and the withdrawal of FIP provisions subjecting Texas EGUs to CSAPR SO<sub>2</sub> and annual NO<sub>x</sub> requirements that is proposed separately. That proposed analysis supports the continued conclusion that CSAPR participation would achieve greater reasonable progress than BART for NO<sub>x</sub> despite the change in the treatment of Texas and Florida EGUs. Consequently, we have proposed that the Regional Haze Rule continues to authorize the use of CSAPR participation as a BART alternative for EGUs.<sup>21</sup> Finalization of that proposal would allow for Texas' regional haze program to rely on CSAPR ozone season control program participation as an alternative to source-specific EGU BART for NO<sub>x</sub>.<sup>22</sup> Based on that national proposal, we are now proposing a FIP to replace Texas' reliance on CAIR with reliance on CSAPR to address the NO<sub>x</sub> BART requirements for EGUs. Finalization of this portion of the FIP is contingent on our taking final action to find that CSAPR continues to be an appropriate alternative to source specific BART. However, finalization of the portion of our national proposal that would withdraw the FIP provisions for Texas for annual emissions of SO<sub>2</sub> and NO<sub>x</sub> described above would mean that Texas will no longer be eligible to rely on CSAPR participation as an alternative to source-specific EGU BART for SO<sub>2</sub>. As a result, we are proposing to promulgate a FIP that includes BART screening of sources and a source-by-source analysis for SO<sub>2</sub> BART and controls for this pollutant as appropriate. We are also unable to propose approval of the Texas

---

<sup>21</sup> 81 FR at 78962-78964.

<sup>22</sup> While we have proposed to remove Texas from CSAPR's annual NO<sub>x</sub> program, CSAPR is still an appropriate alternative to BART for NO<sub>x</sub> purposes because EGUs in Texas continue to be required to participate in CSAPR's ozone season NO<sub>x</sub> program.

Regional Haze SIP's PM BART evaluation, as previously proposed, as that demonstration made underlying assumptions that are no longer valid.<sup>23</sup> We instead propose to disapprove that portion of the SIP and, in place of it, promulgate source-specific PM BART requirements for EGUs that we have evaluated to be subject to BART in this proposed FIP.

We believe, however, it is preferable for states to assume primary responsibility for implementing the Regional Haze requirements as envisioned by the CAA. We will work with the State of Texas if it chooses to develop a SIP to meet these overdue Regional Haze requirements and replace or avoid a finalized FIP.

The FIP we are proposing includes BART control determinations for EGUs in Texas without previously approved BART determinations and associated compliance schedules and requirements for equipment maintenance, monitoring, testing, recordkeeping, and reporting for all affected sources and units. The EGU BART sources addressed in this FIP cause or contribute to visibility impairment at one or more Class I areas in Texas, Oklahoma, Arkansas, and New Mexico. The two Class I areas in Texas are Big Bend National Park and the Guadalupe Mountains National Park. The Class I area in Oklahoma is the Wichita Mountains National

---

<sup>23</sup> We previously proposed approval of Texas' SIP for EGU PM BART on the premise that EGU BART for both SO<sub>2</sub> and NO<sub>x</sub> were covered by participation in CSAPR, which allowed Texas to conduct a screening analysis of the visibility impacts from PM emissions in isolation. However, modeling on a pollutant-specific basis for PM is appropriate only in the narrow circumstance where a state relies on a BART alternative to satisfy NO<sub>x</sub> and SO<sub>2</sub> BART. Due to the complexity and nonlinear nature of atmospheric chemistry and chemical transformation among pollutants, EPA has not recommended performing modeling on a pollutant-specific basis to determine whether a source is subject to BART, except in the unique situation described above. See discussion in Memorandum from Joseph Paisie to Kay Prince, "Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations," July 19, 2006. More recently, the Ninth Circuit upheld EPA's disapproval of the Arizona regional haze SIP for including a pollutant-specific screening analysis for NO<sub>x</sub>. *Phoenix Cement Co. v. EPA*, 647 F. App'x 702, 705-06 (9th Cir. Mar. 31, 2016) (upholding EPA's interpretation that the "Regional Haze Rule [] require[s] a BART determination for any pollutant at a source that exceeds the de minimis threshold, once that source has been determined subject to BART."). We did not finalize our proposed approval of Texas' EGU PM BART determination because of the uncertainty at that time concerning the CSAPR remand and whether Texas would continue to have CSAPR coverage for both NO<sub>x</sub> and SO<sub>2</sub>, 81 FR 296, 302, but that uncertainty has now been resolved.

Wildlife Refuge. The two Class I areas in Arkansas are the Caney Creek Wilderness Area and the Upper Buffalo Wilderness Area. The closest impacted Class I areas in New Mexico are the Carlsbad Caverns National Park, Salt Creek Wilderness Area, and White Mountains Wilderness Area.

In order to remedy these deficiencies in the Texas SIP, we are proposing this FIP to establish the means by which the regional haze program for Texas will meet the BART requirements for SO<sub>2</sub>, NO<sub>x</sub>, and PM. We are proposing source-specific BART determinations for EGUs subject to BART for SO<sub>2</sub> and PM. We are proposing that NO<sub>x</sub> BART requirements for EGUs in Texas will be satisfied by a determination, proposed for separate finalization, that Texas' participation in CSAPR's ozone season control program is a permissible alternative to source-specific NO<sub>x</sub> BART.

Addressing the BART requirement for Texas EGUs, as proposed today, with cost-effective and readily available controls, will help ensure that progress is made toward natural visibility conditions at Class I areas affected by Texas' sources. Please refer to our previous rulemaking on the Texas regional haze SIP for additional background regarding the CAA, regional haze, and our Regional Haze Rule.<sup>24</sup>

## **B. Interstate Transport of Pollutants that Affect Visibility**

Section 110(a) of the CAA directs states to submit a SIP that provides for the implementation, maintenance, and enforcement of each NAAQS, which is commonly referred to

---

<sup>24</sup> 81 FR 296. The public docket for this past rulemaking remains accessible under EPA Docket ID: EPA-R06-OAR-2014-0754 at <https://www.regulations.gov>. This proposed rulemaking has a separately established docket (EPA-R06-OAR-2016-0611). Our TSD contains a list of materials from EPA Docket ID: EPA-R06-OAR-2014-0754 that we incorporate by reference and consider to be part of this rulemaking record even as they are not necessarily re-uploaded to the newer docket.

as an infrastructure SIP. Among other things, CAA 110(a)(2)(D)(i)(II) requires that SIPs contain adequate provisions to prohibit interference with measures required to protect visibility in other states. This requirement is referred to as “interstate visibility transport.” SIPs addressing interstate visibility transport are due to EPA within three years after the promulgation of a new or revised NAAQS (or within such shorter period as we may prescribe). A state’s failure to submit a complete, approvable SIP for interstate visibility transport creates an obligation for EPA to promulgate a FIP to address this requirement.<sup>25</sup>

Previously, we issued a finding that Texas failed to submit a SIP revision to satisfy all four requirements of interstate transport under section 110(a)(2)(D)(i) of the CAA for the 1997 8-hour ozone and 1997 PM<sub>2.5</sub> NAAQS.<sup>26</sup> Texas later submitted a SIP revision to address interstate transport for these NAAQS. However, in our January 5, 2016 final action we disapproved the portion of Texas’ SIP revisions intended to address interstate visibility transport for six NAAQS, including the 1997 8-hour ozone and 1997 PM<sub>2.5</sub>.<sup>27</sup> We concluded that to meet the requirements of interstate visibility transport: (1) Texas could not rely on its Regional Haze SIP, which relied heavily upon the remanded CAIR, to ensure that emissions from Texas do not interfere with measures to protect visibility in nearby states; and (2) additional control of SO<sub>2</sub>

---

<sup>25</sup> CAA § 110(c)(1). Mandatory sanctions under CAA section 179 do not apply because the deficiencies are not with respect to a submission that is required under CAA title I part D. “Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and (2)” at pages 34–35 (September 13, 2013) [hereinafter 2013 i-SIP Guidance].

<sup>26</sup> 70 FR 21147 (April 25, 2005). The four components of interstate transport in Section 110(a)(2)(D)(i) are contained in two subsections. Section 110(a)(2)(D)(i)(I) addresses any emissions activity in one state that contributes significantly to nonattainment, or interferes with maintenance, of the NAAQS in another state. Section 110(a)(2)(D)(i)(II) requires SIPs to include provisions prohibiting any source or other type of emissions activity in one state from interfering with measures required of any other state to prevent significant deterioration of air quality or from interfering with measures required of any other state to protect visibility (referring to visibility in Class I areas). This proposal only addresses the fourth requirement concerning visibility.

<sup>27</sup> Specifically, we previously disapproved the relevant portion of these Texas’ SIP submittals: April 4, 2008: 1997 8-hour Ozone, 1997 PM<sub>2.5</sub> (24-hour and annual); May 1, 2008: 1997 8-hour Ozone, 1997 PM<sub>2.5</sub> (24-hour and annual); November 23, 2009: 2006 24-hour PM<sub>2.5</sub>; December 7, 2012: 2010 NO<sub>2</sub>; December 13, 2012: 2008 8-hour Ozone; May 6, 2013: 2010 1-hour SO<sub>2</sub> (Primary NAAQS). 79 FR 74818, 74821; 81 FR 296, at 302.



emissions in Texas were needed to prevent interference with measures required to be included in the Oklahoma SIP to protect visibility. However, in that action we did not finalize the portion of our proposed FIP addressing Texas' interstate visibility transport obligations because that portion of the proposed FIP would have partially relied on CSAPR to ensure the emissions from Texas' sources do not interfere with other states' visibility programs. Given the uncertainty that existed at the time arising from the D.C. Circuit's remand of Texas' CSAPR budgets (*EME Homer City Generation v. EPA*, 79 F.3d 118 (D.C. Cir.)), we concluded that it was not appropriate to finalize our proposed determination to rely on CSAPR as an alternative to SO<sub>2</sub> and NO<sub>x</sub> BART for EGUs in Texas in that action.<sup>28</sup>

Our prior disapproval of interstate visibility transport for the six NAAQS is currently stayed by the Fifth Circuit.<sup>29</sup> We recognize that because our prior disapproval of the Texas SIP submittals addressing interstate visibility transport relied in part on our determinations of the measures needed in Texas to ensure reasonable progress in Oklahoma, the Fifth Circuit's stay of our previous action complicates next steps to ensure that the visibility requirements of CAA 110(a)(2)(D)(i)(II) are met. The Court's stay accordingly calls into question whether our past disapprovals for interstate visibility transport would stand. At the same time, we also note that we continue to have an obligation to issue a FIP for the 1997 8-hour ozone and 1997 PM<sub>2.5</sub> NAAQS as a result of our 2005 finding that Texas failed to timely submit SIPs to address the interstate transport visibility requirements. Given the uncertainties arising from the Fifth Circuit's stay of our prior disapproval, we are now proposing to reconsider the basis of our prior

---

<sup>28</sup> 81 FR 296, 301-2.

<sup>29</sup> July 15, 2016 Order in *Texas v. EPA* (Fifth Cir. Case No. 16-160118). The EPA's filed motion requesting voluntary partial remand and continuation of the judicial stay for remanded parts of the rule includes our prior disapproval of Texas' SIPs concerning interstate visibility transport. This motion is currently pending disposition.

disapproval of Texas' SIP submittals addressing the interstate visibility transport requirement for all six NAAQS. We are now proposing to determine that Texas' SIP submittals addressing interstate visibility transport for the six NAAQS are not approvable because these submittals relied solely on Texas' Regional Haze SIP to ensure that emissions from Texas did not interfere with required measures in other states. Texas' Regional Haze SIP, in turn, relied on the implementation of CAIR as an alternative to EGU BART for SO<sub>2</sub> and NO<sub>x</sub>. Specifically, we are proposing disapproval of the following Texas SIP submittals insofar as they address the interstate visibility transport requirement: April 4, 2008: 1997 8-hour Ozone, 1997 PM<sub>2.5</sub> (24-hour and annual); May 1, 2008: 1997 8-hour Ozone, 1997 PM<sub>2.5</sub> (24-hour and annual); November 23, 2009: 2006 24-hour PM<sub>2.5</sub>; December 7, 2012: 2010 NO<sub>2</sub>; December 13, 2012: 2008 8-hour Ozone; May 6, 2013: 2010 1-hour SO<sub>2</sub> (Primary NAAQS). Texas has not submitted a SIP revision to remove reliance on CAIR for Regional Haze or interstate visibility transport. As CAIR is no longer in effect and has been replaced by CSAPR, we are proposing to find that Texas' Regional Haze SIP does meet its interstate visibility transport obligations. As a result, the Texas SIPs to address interstate visibility transport for these six NAAQS continue to be unapprovable.

We are proposing a FIP to cure the deficiencies in Texas' Regional Haze Program concerning EGU BART. This FIP will replace reliance on CAIR with reliance on CSAPR to meet the requirements for EGU BART for NO<sub>x</sub> in Texas. The FIP will also address Texas EGU BART for SO<sub>2</sub> and PM on a source-specific basis. With the absence of CSAPR coverage for SO<sub>2</sub>, we must reevaluate what is needed in Texas to address interstate visibility transport. Our proposed FIP to address Texas EGU BART achieves significant reductions of SO<sub>2</sub>, which exceed the reductions initially assumed for Texas under either CAIR or CSAPR. In addition, our

proposed FIP achieves reductions at large sources of SO<sub>2</sub> emissions (e.g., Monticello, Martin Lake and Big Brown), that have significant impacts on Class I areas in nearby states. The BART FIP requires controls on many but not all of the sources that were controlled in our previous partial FIP for Texas Regional Haze. The EGU BART FIP also includes control requirements at some additional sources not controlled in our previous action on Texas Regional Haze.

We are proposing to find that our proposed EGU BART FIP is adequate to prevent interference with measures required to protect visibility in other states for the first planning period.<sup>30</sup> We, therefore, propose that the measures in our proposed FIP to address Texas EGU BART will fully address Texas' interstate visibility transport obligations for the six NAAQS (1997 8-hour ozone, 1997 PM<sub>2.5</sub>, 2006 PM<sub>2.5</sub>, 2008 8-hour ozone, 2010 1-hour NO<sub>2</sub>, and 2010 1-hour SO<sub>2</sub>). We also propose that reliance on CSAPR for EGU NO<sub>x</sub> BART is appropriate to ensure NO<sub>x</sub> emissions from Texas EGUs do not interfere with other states' measures to protect visibility. We are proposing this action based on the reasoning that our BART FIP will achieve more emission reductions than projected under CAIR or CSAPR and the reductions are occurring at sources that have particularly large impacts on Class I areas outside of Texas. To the extent our previous final action concerning Texas Regional Haze is remanded by a Court or otherwise reconsidered in the future, we may revisit whether controls in the EGU BART FIP are adequate to address interstate visibility transport requirements. Nonetheless, we are here proposing that the proposed EGU BART FIP measures will be adequate to address interstate

---

<sup>30</sup> This proposed FIP for interstate visibility transport is premised on the interpretation that this requirement can be addressed even when a Regional Haze SIP is not fully approved and the FIP does not purport to correct all Regional Haze SIP deficiencies. *See e.g.* 76 FR 52388 (August 22, 2011); 76 FR 22036 (April 20, 2011); and 78 FR 14681 (March 7, 2013); *see also*, 2013 i-SIP Guidance, at page 34 (stating that EPA may find it appropriate to supplement the i-SIP Guidance regarding the relationship between Regional Haze SIPs and interstate visibility transport for future planning periods).

visibility transport based on current information. This proposal concerning the adequacy of the proposed FIP remedy does not depend on our earlier action on the Texas Regional Haze SIP or hinge on its disposition, nor does it foreclose that we may reexamine visibility transport concerns under potential scenarios where we have a responsibility to take new action.<sup>31</sup>

We encourage Texas to consider adopting additional SIP provisions that would allow the EPA to fully approve the Regional Haze SIP and thus to withdraw the FIP and approve Texas' SIP with respect to interstate visibility transport. Texas may also elect to satisfy interstate visibility transport by providing, as an alternative to relying on its Regional Haze SIP alone, a demonstration that emissions within its jurisdiction do not interfere with other states' plans to protect visibility.<sup>32</sup>

### **C. Our Obligation to Promulgate a FIP**

Under section 110(c) of the CAA, whenever we disapprove a mandatory SIP submission in whole or in part, we are required to promulgate a FIP within 2 years unless we approve a SIP revision correcting the deficiencies before promulgating a FIP. Specifically, CAA section 110(c) provides that the Administrator shall promulgate a FIP within 2 years after the Administrator disapproves a state implementation plan submission “unless the State corrects the deficiency, and the Administrator approves the plan or plan revision, before the Administrator promulgates such Federal implementation plan.”<sup>33</sup> The term “Federal implementation plan” is defined in Section 302(y) of the CAA in pertinent part as a plan promulgated by the Administrator to correct an

---

<sup>31</sup> See e.g. 78 FR 14681, 14685.

<sup>32</sup> 2013 i-SIP Guidance, at pages 34-35.

<sup>33</sup> EPA additionally has the authority to promulgate a FIP any time after finding that “a State has failed to make a required submission” of a SIP. CAA section 110(c)(1)(A); 42 U.S.C. §7410(c)(1)(a).

inadequacy in a SIP.

Beginning in 2012, following the limited disapproval of the Texas Regional Haze SIP, EPA had the authority and obligation to promulgate a FIP to address BART for Texas EGUs for NO<sub>x</sub> and SO<sub>2</sub>. In proposing to disapprove the Regional Haze SIP component that sought to address the PM BART requirement for Texas EGUs, we also have the obligation to promulgate a PM BART FIP to address the deficiency. Texas has not addressed the EGU BART disapproval, and that requirement is now significantly overdue.<sup>34</sup> We are accordingly empowered and required by the CAA to make determinations and promulgate a FIP to ensure the BART requirement for Texas EGUs is satisfied.

Adding to this background, beginning with our January 5, 2016 disapproval of Texas SIP provisions regarding interstate visibility transport, we obtained the authority and obligation to promulgate a FIP to correct the deficiencies relating to that CAA requirement.<sup>35</sup> As with the BART requirement, we lack a SIP revision that would have any potential to correct the deficiency, necessitating that we now take action under FIP authority.

### **III. Our Proposed BART Analyses for SO<sub>2</sub> and PM**

In our previous action,<sup>36</sup> we determined that due to the CSAPR remand, it was not appropriate at that time to rely on CSAPR as an alternative to SO<sub>2</sub> and NO<sub>x</sub> BART for EGUs in

---

<sup>34</sup> The Texas Regional Haze SIP stated, “The TCEQ will take appropriate action if CAIR is not replaced with a system that the US EPA considers to be equivalent to BART.” BART determinations were due in SIP submissions on December 17, 2007, 40 CFR 51.308(b), putting them on a timeline for controls by 2014 (considering the deadline for SIP action at CAA section 110(k)(2) and allowing five years for installation of BART controls). Additional delay of any amount is not appropriate and not consistent with the law.

<sup>35</sup> Additionally, we continue to have authority to issue a FIP to address interstate visibility transport for 1997 8-hour ozone and 1997 PM<sub>2.5</sub> due to our 2005 finding that Texas failed to submit SIPs to address interstate transport for these NAAQS under CAA section 110(a)(2)(D)(i). 70 FR 21147.

<sup>36</sup> See the discussion beginning on 81 FR 301 (January 5, 2016).

Texas. As a consequence, action to satisfy the overdue requirement to address BART for EGUs in the state of Texas was further delayed.<sup>37</sup> In this proposal, we are proposing that CSAPR, once fully revised to address the D.C. Circuit's remand, provides a basis for satisfying EGU BART obligations for NO<sub>x</sub> alone. It remains the case that we cannot rely on CSAPR as an alternative to SO<sub>2</sub> BART for Texas EGUs as further confirmed by our proposed action to remove Texas from the annual NO<sub>x</sub> and SO<sub>2</sub> control programs. Thus, we have the obligation to consider source-specific requirements for Texas EGUs consistent with the BART Guidelines for SO<sub>2</sub> BART.

Because the component of the Texas Regional Haze SIP regarding the PM BART requirement for EGUs has not been acted on, we have the responsibility under CAA section 110(k) to evaluate the submission and take action to approve or disapprove it. The SIP determinations for PM were based on modeling that was conducted by examining visibility impairment due to PM emissions alone, based on the assumption that the state would be participating in CAIR for SO<sub>2</sub> and NO<sub>x</sub> and thereby having BART coverage for those pollutants. The Texas Regional Haze SIP had concluded that no PM BART controls for EGUs were appropriate, because modeling assessment of PM impacts alone showed their impacts to be too small to warrant control consideration. But Texas' screening analysis is no longer reliable or accurate because of the invalid assumption that source-by-source BART for either SO<sub>2</sub> or NO<sub>x</sub> would not be required. In order to appropriately evaluate the BART requirements for EGUs, the visibility impacts from all pollutants must be studied, including PM emissions. Texas' PM BART analysis for EGUs does not do this.<sup>38</sup>

---

<sup>37</sup> Id. at 346.

<sup>38</sup> Texas' Regional Haze SIP determined whether its sources should be subject to review for PM controls by only looking at the impact of PM emissions on visibility. This approach is only appropriate when a state satisfies the requirements for BART for SO<sub>2</sub> and NO<sub>x</sub> with an alternative measure. Additionally, as reflected in our TSD on the

Accordingly, we are proposing to disapprove the portion of the Texas Regional Haze SIP that determined that all Texas EGUs screen out of the BART requirement for PM. The basis for the proposed disapproval is the SIP determination's assumption that EGUs would have coverage for SO<sub>2</sub> and NO<sub>x</sub> BART under an alternative measure.<sup>39</sup> Since that assumption is not valid, the technical determinations regarding PM BART cannot be approved. Following the directions of the BART Guidelines on how to identify sources "subject to BART," we have looked at all visibility impairing pollutants from EGUs that are BART-eligible. Our proposed FIP therefore seeks to fill that regulatory gap by assessing BART for Texas EGUs for visibility impairing pollutants other than NO<sub>x</sub>, i.e., SO<sub>2</sub> and PM.

#### **A. Identification of BART-Eligible Sources**

The BART Guidelines set forth the steps for identifying whether the source is a BART-eligible source:<sup>40</sup>

Step 1: Identify the emission units in the BART categories,

Step 2: Identify the start-up dates of those emission units, and

Step 3: Compare the potential emissions to the 250 ton/yr cutoff.

Following our 2016 final action on the March 31, 2009 Texas RH SIP, we began the

---

identification of BART-Eligible Sources, the Texas SIP neglected to identify several BART-eligible sources; this also shows error in the state's PM BART demonstration and conclusions, and it constitutes grounds for the proposed partial SIP disapproval for PM BART.

<sup>39</sup> The requirements for "emissions trading programs or other alternative measures" that may be implemented rather than requiring BART are provided at 40 C.F.R. 51.308(e)(2).

<sup>40</sup> 70 FR 39158 (July 6, 2005).

process of generating additional technical information and analysis in order to address the above three steps in our BART-eligibility proposal. We started with Texas’ facility-specific listing of BART-eligible EGU sources and removed sources we verified had retired. We then gathered additional information from (1) our authority under Section 114(a) of the CAA to request information from potential BART-eligible sources, and (2) the U.S. Energy Information Administration (EIA). We then converted Texas’ facility-specific BART-eligible list to a unit-specific BART-eligible list and verified the BART-eligibility of each unit. The following is a list of units we propose have satisfied the above three steps and are BART-eligible:<sup>41</sup>

Table 1. Summary of BART-Eligibility Analysis

<b>Facility</b>	<b>Unit</b>
Barney M. Davis (Talen/Topaz)	1
Big Brown (Luminant)	1
Big Brown (Luminant)	2
Cedar Bayou (NRG)	CBY1
Cedar Bayou (NRG)	CBY2
Coleto Creek (Engie)	1
Dansby (City of Bryan)	1
Decker Creek (Austin Energy)	1
Decker Creek (Austin Energy)	2
Fayette (LCRA)	1
Fayette (LCRA)	2
Graham (Luminant)	2

---

<sup>41</sup> See our BART FIP TSD for more information concerning how we selected the units we are proposing are BART-eligible and other details concerning our proposed BART determinations.



Greens Bayou (NRG)	5
Handley (Exelon)	3
Handley (Exelon)	4
Handley (Exelon)	5
Harrington Station (Xcel)	061B
Harrington Station (Xcel)	062B
J T Deely (CPS Energy)	1
J T Deely (CPS Energy)	2
Jones Station (Xcel)	151B
Jones Station (Xcel)	152B
Knox Lee Power Plant (AEP)	5
Lake Hubbard (Luminant)	1
Lake Hubbard (Luminant)	2
Lewis Creek (Entergy)	1
Lewis Creek (Entergy)	2
Martin Lake (Luminant)	1
Martin Lake (Luminant)	2
Martin Lake (Luminant)	3
Monticello (Luminant)	1
Monticello (Luminant)	2
Monticello (Luminant)	3
Newman (El Paso Electric)	2
Newman (El Paso Electric)	3
Newman (El Paso Electric)	4
Nichols Station (Xcel)	143B
O W Sommers (CPS Energy)	1
O W Sommers (CPS Energy)	2
Plant X (Xcel)	4
Powerlane (City of Greenville)	ST1

Powerlane (City of Greenville)	ST2
Powerlane (City of Greenville)	ST3
R W Miller (Brazos Elec. Coop)	1
R W Miller (Brazos Elec. Coop)	2
R W Miller (Brazos Elec. Coop)	3
Sabine (Entergy)	2
Sabine (Entergy)	3
Sabine (Entergy)	4
Sabine (Entergy)	5
Sim Gideon (LCRA)	1
Sim Gideon (LCRA)	2
Sim Gideon (LCRA)	3
Spencer (City of Garland)	4
Spencer (City of Garland)	5
Stryker Creek (Luminant)	ST2
Trinidad (Luminant)	6
Ty Cooke (City of Lubbock)	1
Ty Cooke (City of Lubbock)	2
V H Braunig (CPS Energy)	1
V H Braunig (CPS Energy)	2
V H Braunig (CPS Energy)	3
W A Parish (NRG)	WAP4
W A Parish (NRG)	WAP5
W A Parish (NRG)	WAP6
Welsh Power Plant (AEP)	1
Welsh Power Plant (AEP)	2
Wilkes Power Plant (AEP)	1
Wilkes Power Plant (AEP)	2
Wilkes Power Plant (AEP)	3

The final step in identifying a “BART-eligible source” is to use the information from the previous three steps to identify the collection of emissions units that comprise the BART-eligible source.

## **B. Identification of Sources that are Subject to BART**

Following our compilation of the BART-eligible sources in Texas, we examined whether these sources cause or contribute to visibility impairment in nearby Class I areas.<sup>42</sup> For those sources that are not reasonably anticipated to cause or contribute to any visibility impairment in a Class I area, a BART determination is not required. Those sources are determined to be not subject-to-BART. Sources that are reasonably anticipated to cause or contribute to any visibility impairment in a Class I area are determined to be subject-to-BART. For each source subject to BART, 40 CFR 51.308(e)(1)(ii)(A) requires that states (or EPA, in the case of a FIP) identify the level of control representing BART after considering the factors set out in CAA section 169A(g). The BART guidelines discuss several approaches available to exempt sources from the BART determination process, including modeling individual sources and the use of model plants. To determine which sources are anticipated to contribute to visibility impairment the BART guidelines state that CALPUFF or another appropriate model can be used to predict the visibility impacts from a single source at a Class I area. We employed a four-fold strategy in determining which units should or should not be subject to BART. A flowchart of the analysis along with a

---

<sup>42</sup> See 40 C.F.R. Part 51, Appendix Y, III, How to Identify Sources “Subject to BART”

detailed discussion of the subject-to-BART screening analysis is provided in the BART Screening TSD.<sup>43</sup> We summarize the methodology and results of this analysis here.

First, we examined whether any of the BART-eligible units should be eliminated from consideration based on the standard model plant exemptions described in the BART Guidelines.<sup>44</sup> Second, we created specific model plants between sources and nearby Class I areas and conducted CALPUFF modeling to evaluate a number of sources for exemption. Third, we performed stand-alone, source specific CALPUFF modeling on a number of units to determine if their visibility impacts were large enough to identify them as being subject to BART. Fourth, for those remaining units outside of the CALPUFF model's range, we contracted to have CAMx modeling performed to determine if their visibility impacts were large enough to merit their being subject to BART. These steps are further described below.

For states using modeling to determine the applicability of BART to single sources, the BART Guidelines note that the first step is to set a contribution threshold to assess whether the impact of a single source is sufficient to cause or contribute to visibility impairment at a Class I area. The BART Guidelines preamble advises that, “for purposes of determining which sources are subject to BART, States should consider a 1.0 deciview change or more from an individual source to “cause” visibility impairment, and a change of 0.5 deciviews to “contribute” to impairment.”<sup>45</sup> It further advises that “States should have discretion to set an appropriate threshold depending on the facts of the situation,” but “[a]s a general matter, any threshold that you use for determining whether a source ‘contributes’ to visibility impairment should not be

---

<sup>43</sup> See our TSD, “Our Strategy for Assessing which Units are Subject to BART for the Texas Regional Haze BART Federal Implementation Plan (BART Screening TSD)” in our docket.

<sup>44</sup> See the discussion beginning on 70 FR 39104, 39162 (July 6, 2005) [40 CFR Part 51, App. Y].

<sup>45</sup> 70 FR at 39118.

higher than 0.5 dv,” and describes situations in which states may wish to exercise their discretion to set lower thresholds, mainly in situations in which a large number of BART-eligible sources within the State and in proximity to a Class I area justify this approach. We do not believe that the sources under consideration in this rule, most of which are not in close proximity to a Class I area, merit the consideration of a lesser contribution threshold. Therefore, our analysis employs a contribution threshold of 0.5 deciviews.

### **1. Our use of the Standard BART Model Plant Exemption**

As the BART Guidelines note:

[W]e believe that a State that has established 0.5 deciviews as a contribution threshold could reasonably exempt from the BART review process sources that emit less than 500 tons per year of NO<sub>x</sub> or SO<sub>2</sub> (or combined NO<sub>x</sub> and SO<sub>2</sub>), as long as these sources are located more than 50 kilometers from any Class I area; and sources that emit less than 1000 tons per year of NO<sub>x</sub> or SO<sub>2</sub> (or combined NO<sub>x</sub> and SO<sub>2</sub>) that are located more than 100 kilometers from any Class I area. You do, however, have the option of showing other thresholds might also be appropriate given your specific circumstances.<sup>46</sup>

We applied the standard BART model plant exemption described above to the following facilities, exempting them from further analysis:

---

<sup>46</sup> 70 FR at 39163, [40 CFR Part 51, App. Y].

Table 2: Standard BART Model Plant Exempt Sources

<b>Facility</b>	<b>Units</b>
Dansby (City of Bryan)	1
Greens Bayou (NRG)	5
Nichols Station (Xcel)	143B
Plant X (Xcel)	4
Powerlane (City of Greenville)	ST1, ST2 & ST3
Spencer (City of Garland)	4 & 5
Trinidad (Luminant)	6
Ty Cooke (City of Lubbock)	1 & 2

## 2. Our Extension of the BART Model Plant Exemption

As the BART Guidelines note, the standard BART model plant exemption can be extended to values other than the 500 tons/50 km and 1,000 tons/100 km scenarios discussed in the previous section. The BART Guidelines explain that: “you may find based on representative plant analyses that certain types of sources are not reasonably anticipated to cause or contribute to visibility impairment. To do this, you may conduct your own modeling to establish emission levels and distances from Class I areas on which you can rely to exempt sources with those characteristics.”<sup>47</sup>

Modeling analyses of representative plants are used to reflect groupings of specific sources with important common characteristics. We conducted CALPUFF modeling to establish emission levels and distances from Class I areas on which we could rely to exempt sources with those characteristics. In this approach, a hypothetical facility (“model plant”) is located between a group of BART-eligible sources and a Class I area. Predominant wind patterns and elevation are considered in locating the model plant such that conditions that would be anticipated to

---

<sup>47</sup> 70 FR at 39163 [40 CFR Part 51, App. Y].

transport pollution from the group of BART-eligible sources to the Class I area are consistent with conditions anticipated to transport pollution from the model plant to the Class I area. The visibility impacts from this model plant are modeled utilizing CALPUFF following the protocol described in the BART Screening TSD. Model plant emissions are adjusted such that the modeled visibility impact (maximum of 98th percentile values for 2001, 2002, and 2003) is below the screening threshold of 0.5 dv. For each model plant, the Q/d value is calculated as the annual emissions (combined NO<sub>x</sub> and SO<sub>2</sub> emissions) divided by distance to the Class I area (km) resulting in a critical Q/d value. The Q/d value for each BART-eligible source is calculated based on annual emissions based on the maximum actual 24-hr emission rate and distance to the Class I area and is then compared to the critical Q/d value. For a BART-eligible source with a lower Q/d value than the critical Q/d, it is reasonably anticipated that the visibility impact from the BART-eligible source is lower than the model plant and therefore below the screening threshold and not subject to BART. See the BART Screening TSD for additional discussion and source-specific information used in this model plant screening analysis. By this extension of the BART model plant exemption, we identified the following additional facilities that can be exempted from further analysis:

Table 3: Extended BART Model Plant Exempt Sources

<b>Facility</b>	<b>Units</b>
Barney M. Davis (Talen/Topaz)	1
Cedar Bayou (NRG)	CBY1 & CBY2
Decker Creek (Austin Energy)	1 & 2
Lewis Creek (Entergy)	1 & 2
Sabine (Entergy)	2, 3, 4 & 5
Sim Gideon (LCRA)	1, 2 & 3
V H Braunig (CPS Energy)	1, 2 & 3

### **3. Our use of CALPUFF Modeling to Exempt Sources from Being Subject to BART**

Those sources that did not screen out using the model plant approach were modeled directly with CALPUFF if they were in a range of when CALPUFF has been previously used. Historically CALPUFF has been used at distances up to approximately 400 km. The maximum 98<sup>th</sup> percentile impact from the modeled years (calculated based on annual average natural background conditions) was compared with the 0.5 dv screening threshold following the modeling protocol described in the BART screening TSD. The BART Guidelines recommend that states use the 24-hour average actual emission rate from the highest emitting day of the meteorological period modeled, unless this rate reflects periods of start-up, shutdown, or malfunction. The maximum 24-hour emission rate (lb/hr) for NO<sub>x</sub> and SO<sub>2</sub> from the 2000-2004 baseline period for each source was identified through a review of the daily emission data for each BART-eligible unit from EPA's Air Markets Program Data.<sup>48</sup> For some BART-eligible sources, evaluation of baseline emissions revealed evidence of the installation of NO<sub>x</sub> control technology during the baseline period. For those sources, the maximum emission rate was updated to reflect the identified maximum emission rate from the post-control portion of the baseline period. Because daily emissions are not available for PM, the annual average emission rate was doubled to approximate the 24-hr maximum emission rate for PM. See the BART Screening TSD for additional discussion and source-specific information used in the CALPUFF modeling for this portion of the screening analysis. With the use of CALPUFF modeling results, we identified the following additional facilities that can be exempted from further analysis:

---

<sup>48</sup> <http://ampd.epa.gov/ampd/>



Table 4: CALPUFF BART Exempt Sources

<b>Facility</b>	<b>Units</b>
Handley (Exelon)	3, 4 & 5
Jones (Xcel)	151B & 152B
Lake Hubbard (Luminant)	1 & 2
Knox Lee (AEP)	5
R W Miller (Brazos Elec. Coop)	1, 2 & 3

Based on these CALPUFF screening analyses using model plant approaches and direct modeling, the following gas<sup>49</sup>/fuel oil fired facilities did not screen out from being subject to BART: Newman, Stryker, Graham, and Wilkes. None of the coal fired facilities screened out in our CALPUFF modeling for the facilities within CALPUFF range.

#### **4. Our use of CAMx Modeling to Exempt Sources from Being Subject to BART**

Some of the BART-eligible sources in Texas are geographically distant from a Class I area, yet have high enough emissions that they may significantly impact visibility at Class I areas in Texas and surrounding states. However, the use of CALPUFF is not recommended for distances much greater than 300 km, and has typically not been used at distances more than approximately 400 km. To determine which sources are anticipated to contribute to visibility impairment the BART guidelines state that CALPUFF or another appropriate model can be used to predict the visibility impacts from a single source at a Class I area. CAMx provides a scientifically defensible platform for assessment of visibility impacts over a wide range of source-to-receptor distances. CAMx is also more suited than some other modeling approaches

---

<sup>49</sup> When we use the term “gas,” we mean “pipeline quality natural gas.”

for evaluating the impacts of SO<sub>2</sub>, NO<sub>x</sub>, VOC and PM emissions as it has a more robust chemistry mechanism. The CAMx PM Source Apportionment Technology (PSAT) modeling was conducted for those BART-eligible sources that have large SO<sub>2</sub> emissions.<sup>50</sup> In 2006/2007, the TCEQ developed a modeling protocol and analysis using CAMx with the same Plume in Grid and PSAT techniques to evaluate visibility impacts from non-EGU BART sources, as well as to evaluate VOC and PM impacts from all BART-eligible sources to inform the 2009 Texas Regional Haze SIP.<sup>51,52</sup> This modeling protocol was reviewed by the TCEQ, EPA and FLM representatives specialized in air quality analyses and BART prior to performing the analysis and submission of their regional haze SIP. Our subject-to-BART screening modeling for EGU-sources using CAMx is consistent with the protocol developed and utilized by Texas in their regional haze SIP. We are using more recent model versions with updated science in our analysis.

Consistent with the BART guidelines and our CALPUFF modeling, for the selected BART-eligible sources we used the maximum actual 24-hr emission rates for NO<sub>x</sub> and SO<sub>2</sub> from the 2000-2004 baseline period from EPA's Air Markets Program Data<sup>53</sup> and modeled these emission rates as constant emission rates for the entire modeled year. For some of the modeled BART-eligible sources, evaluation of baseline emissions revealed evidence of installation of NO<sub>x</sub> control technology during the baseline period. For those sources the maximum emission

---

<sup>50</sup> CAMx results were also obtained and add to our basis of information for coal-fired facilities that have CALPUFF results.

<sup>51</sup> See TX RH SIP Appendix 9-5, "Screening Analysis of Potential BART-Eligible Sources in Texas"; Revised Draft Final Modeling Protocol Screening Analysis of Potentially BART-Eligible Sources in Texas, Environ Sept. 27, 2006; and Guidance for the Application of the CAMx Hybrid Photochemical Grid Model to Assess Visibility Impacts of Texas BART Sources at Class I Areas, Environ December 13, 2007 all available in the docket for this action.

<sup>52</sup> We approved Texas' subject-to-BART analysis for non-EGU sources which relied on this CAMx modeling in our January 5, 2016 rulemaking (81 FR 296)

<sup>53</sup> <http://ampd.epa.gov/ampd/>

rate was identified from the post-control portion of the baseline period. Because daily emissions are not available for PM, the annual average emission rate was doubled to approximate the 24-hr maximum emission rate for PM. A BART-eligible source that is shown not to contribute significantly to visibility impairment at any of the Class I areas using CAMx modeling may be excluded from further steps in the BART process. The maximum modeled impact for each source (calculated based on annual average natural background conditions) was compared to the 0.5 dv contribution threshold. See the BART Screening TSD for additional details on the CAMx modeling performed and the model inputs used. The table below summarizes the results of the CAMx screening analysis. As shown in the table below, all sources analyzed with CAMx modeling had impacts greater than 0.5 dv at one or more Class I areas. The most impacted Class I areas based on these results are Wichita Mountains National Wildlife Refuge in Oklahoma (WIMO), Caney Creek Wilderness Area in Arkansas (CACR), and Salt Creek Wilderness Area in New Mexico (SACR). CAMx modeled impacts at single locations for these sources (maximum impact day) ranged from 0.845 dv to 10.498 dv.

Table 5: CAMx BART Screening Source Analysis Results

<b>BART-eligible source</b>	<b>Units</b>	<b>Most impacted Class I area</b>	<b>Maximum delta-dv</b>	<b>Less than 0.5 dv?</b>	<b>Number of modeled days over 0.5 dv<sup>2</sup></b>	<b>Number of modeled days over 1.0 dv<sup>2</sup></b>
Big Brown	1 & 2	WIMO	4.017	No	65	33
Coletto Creek	1	WIMO	0.845	No	9	0
Fayette Power	1&2	CACR	1.894	No	26	9
Harrington	061B & 062B	SACR	5.288	No	13	5

Martin Lake	1,2,&3	CACR	6.651	No	141	99
Monticello	1,2,&3	CACR	10.498	No	152	111
Calaveras	J T Deely 1&2, OW Sommers 1&2	WIMO	1.513	No	47	6
W A Parish	WAP4, WAP5&WAP6	CACR	3.177	No	54	22
Welsh <sup>1</sup>	1&2	CACR	4.576	No	92	39

<sup>1</sup> Welsh unit 2 has recently shutdown. We note that baseline impacts from unit 1 alone are 2.343 dv at Caney Creek.

<sup>2</sup> Number of days over 0.5 or 1.0 dv at the most impacted Class I area

## 5. Summary of Sources that are Subject to BART

Based on the four methodologies described above, the BART-eligible sources in the table below have been determined to cause or contribute to visibility impairment at a nearby Class I area, and we therefore propose to find the sources are subject-to-BART. They are subject to review for visibility impairing pollutants other than NO<sub>x</sub>.<sup>54</sup> Foremost, they are subject to SO<sub>2</sub> BART, the visibility impairing pollutant that is the main contributor to the regional haze problem at Class I areas in Texas and neighboring states. The sources are also subject to review for source-specific BART requirements for PM.

Table 6: Summary: Sources that are Subject-to-BART

Facility	Units
Big Brown	1 & 2
Coletto Creek	1
Fayette Power	1 & 2
Harrington	061B & 062B
Martin Lake	1, 2 & 3

---

<sup>54</sup> The NO<sub>x</sub> BART requirement for these EGU sources is not addressed by source-specific limits in this proposal. According to our proposal, participation in CSAPR, in its updated form, would serve as a BART alternative, dispensing with the need for source-specific BART determinations and requirements for NO<sub>x</sub>.

Monticello	1, 2 & 3
Calaveras	J T Deely 1 & 2, O W Sommers 1 & 2
W A Parish	WAP4, WAP5 & WAP6
Welsh	1 & 2*
Stryker	ST2
Graham	2
Wilkes	1, 2 & 3
Newman	2, 3 & 4

\* Welsh Unit 2 retired in April, 2016.

### C. Our BART Five Factor Analyses

The purpose of the BART analysis is to identify and evaluate the best system of continuous emission reduction based on the BART Guidelines.<sup>55</sup> In determining BART, a state, or EPA when promulgating a FIP, must consider the five statutory factors in section 169A of the CAA: (1) The costs of compliance; (2) the energy and nonair quality environmental impacts of compliance; (3) any existing pollution control technology in use at the source; (4) the remaining useful life of the source; and (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. See also 40 CFR 51.308(e)(1)(ii)(A). This is commonly referred to as the “BART five factor analysis.” The BART Guidelines break the analyses of these requirements down into five steps:<sup>56</sup>

STEP 1—Identify All Available Retrofit Control Technologies,

STEP 2—Eliminate Technically Infeasible Options,

---

<sup>55</sup> See July 6, 2005 BART Guidelines, 40 CFR Part 51, Regional Haze Regulations and Guidelines for Best Available Retrofit Technology Determinations.

<sup>56</sup> 70 FR 39104, 39164 (July 6, 2005) [40 CFR Part 51, App. Y].

STEP 3—Evaluate Control Effectiveness of Remaining Control Technologies,

STEP 4—Evaluate Impacts and Document the Results, and

STEP 5—Evaluate Visibility Impacts.

The following sections treat these steps individually for SO<sub>2</sub>. We are combining these steps into one section in our assessment of PM BART that follows the SO<sub>2</sub> sections.

### **1. Steps 1 and 2: Technically Feasible SO<sub>2</sub> Retrofit Controls**

The BART Guidelines state that in identifying all available retrofit control options,

[Y]ou must identify the most stringent option and a reasonable set of options for analysis that reflects a comprehensive list of available technologies. It is not necessary to list all permutations of available control levels that exist for a given technology—the list is complete if it includes the maximum level of control each technology is capable of achieving.<sup>57</sup>

Adhering to this, we will identify a reasonable set of SO<sub>2</sub> control options, including those that cover the maximum level of control each technology is capable of achieving. In the course of that task, we will note whether any of these technologies are technically infeasible.

The subject-to-BART units identified in Table 6 can be organized into four broad categories, based on their fuel type and the potential types of SO<sub>2</sub> controls that could be retrofitted: (1) coal-fired EGUs with no SO<sub>2</sub> scrubber, (2) coal-fired EGUs with underperforming

---

<sup>57</sup> 70 FR at 39164, fn 12 [40 C.F.R. Part 51, App. Y]

SO<sub>2</sub> scrubbers, (3) gas-fired EGUs that do not burn oil, and (4) gas-fired EGUs that occasionally burn fuel oil. This classification is represented below:

Table 7: Subject to BART Fuel Types and Potential SO<sub>2</sub> BART Controls

<b>Facility</b>	<b>Unit</b>	<b>Coal no scrubber</b>	<b>Coal underperforming scrubber</b>	<b>Gas no oil</b>	<b>Gas burns oil</b>
Big Brown (Luminant)	1	X			
Big Brown (Luminant)	2	X			
Coleto Creek (Engie)	1	X			
Fayette (LCRA)*	1				
Fayette (LCRA)*	2				
Graham (Luminant)	2				X
Harrington Station (Xcel)	061B	X			
Harrington Station (Xcel)	062B	X			
J T Deely (CPS Energy)	1	X			
J T Deely (CPS Energy)	2	X			
Martin Lake (Luminant)	1		X		
Martin Lake (Luminant)	2		X		
Martin Lake (Luminant)	3		X		
Monticello (Luminant)	1	X			
Monticello (Luminant)	2	X			
Monticello (Luminant)	3		X		
Newman (El Paso Electric)	2				X
Newman (El Paso Electric)	3				X
Newman (El Paso Electric)	4			X	
O W Sommers (CPS Energy)	1				X
O W Sommers (CPS Energy)	2				X
Stryker Creek (Luminant)	ST2				X
W A Parish (NRG)	WAP4			X	
W A Parish (NRG)	WAP5	X			
W A Parish (NRG)	WAP6	X			
Welsh Power Plant (AEP)	1	X			
Wilkes Power Plant (AEP)	1				X
Wilkes Power Plant (AEP)	2			X	
Wilkes Power Plant (AEP)	3			X	

\* The Fayette units have high performing wet Flue Gas Desulfurization scrubbers in place.

For the coal-fired EGUs without an existing scrubber, we have identified four potential control technologies: (1) coal pretreatment, (2) Dry Sorbent Injection (DSI), (3) Spray Dryer Absorber (SDA), and (4) wet Flue Gas Desulfurization (FGD.) For the coal-fired EGUs with an existing underperforming scrubber we will examine whether that scrubber can be upgraded.

Gas-fired EGUs that do not burn oil have inherently very low SO<sub>2</sub> emissions and there are no known SO<sub>2</sub> controls that can be evaluated.

For gas-fired units that occasionally burn fuel oil, we will follow the BART Guidelines recommendations for oil-fired units: “For oil-fired units, regardless of size, you should evaluate limiting the sulfur content of the fuel oil burned to 1 percent or less by weight.”<sup>58</sup> In addition, we will also evaluate the potential for post combustion SO<sub>2</sub> controls for these units.

#### **a. Identification of Technically Feasible SO<sub>2</sub> Retrofit Control Technologies for Coal-Fired Units**

Available SO<sub>2</sub> control technologies for coal-fired EGUs consist of either pretreating the coal in order to improve its qualities, or treating the flue gas through the installation of either DSI or some type of scrubbing technology.

##### *Coal Pretreatment*

Coal pretreatment, or coal upgrading, has the potential to reduce emissions by reducing the amount of coal that must be burned in order to result in the same heat input to the boiler. Coal pretreatment broadly falls into two categories: coal washing and coal drying.

---

<sup>58</sup> 70 FR 39171 (July 6, 2005) [40 CFR 51, App. Y].



Coal washing is often described as preparation (for particular markets) or cleaning (by reducing the amount of mineral matter and/or sulphur in the product coal).<sup>59</sup> Washing operations are carried out mainly on bituminous and anthracitic coals, as the characteristics of subbituminous coals and lignite (brown coals) do not lend themselves to separation of mineral matter by this means, except in a few cases.<sup>60</sup> Coal is mechanically sized, then various washing techniques are employed, depending on the particle size, type of coal, and the desired level of preparation.<sup>61</sup> Following the coal washing, the coal is dewatered, and the waste streams are disposed.

Coal washing takes place offsite at large dedicated coal washing facilities, typically located near where the coal is mined. In addition, coal washing carries with it a number of problems:

- Coal washing is not typically performed on the types of coals used in the power plants under consideration, Powder River Basin (PRB) subbituminous and Texas lignites.
- Because coal washing is not typically conducted onsite of the power plant, it is viewed as a consideration in the selection of the coal, and not as an air pollution control.
- Coal washing poses significant energy and non-air quality considerations under section 51.308(e)(1)(ii)(A). For instance, it results in the use of large quantities of water,<sup>62</sup> and

---

<sup>59</sup> Couch, G. R., "Coal Upgrading to Reduce CO<sub>2</sub> emissions," CCC/67, October 2002, IEA Clean Coal Centre.

<sup>60</sup> Ibid.

<sup>61</sup> Various coal washing techniques are treated in detail in Chapter 4 of *Meeting Projected Coal Production Demands In The USA, Upstream Issues, Challenges, and Strategies*, The Virginia Center for Coal and Energy Research, Virginia Polytechnic Institute and State University, contracted for by the National Commission on Energy Policy, 2008.

<sup>62</sup> "Water requirements for coal washing are quite variable, with estimates of roughly 20 to 40 gallons per ton of coal washed (1 to 2 gal per MMBtu) (Gleick, 1994; Lancet, 1993)." *Energy Demands on Water Resources*, Report to Congress on the Interdependency of Energy and Water, U.S. Department Of Energy, December 2006.

coal washing slurries are typically stored in impoundments, which can, and have, leaked.<sup>63</sup>

Because of these issues, we do not consider coal washing as a part of our reasonable set of options for analysis as BART SO<sub>2</sub> control technology.

In general, coal drying consists of reducing the moisture content of lower rank coals, thereby improving the heating value of the coal and so reducing the amount of coal that has to be combusted to achieve the same power, thus improving the efficiency of the boiler. In the process, certain pollutants are reduced as a result of (1) mechanical separation of mineralized sulfur (e.g., and iron pyrite) and rocks, and (2) the unit burning less coal to make the same amount of power.

Coal drying can be performed onsite and so can be considered a potential BART control. Great River Energy has developed a patented process which is being successfully utilized at the Coal Creek facility and is potentially available for installation at other facilities.<sup>64</sup> This process utilizes excess waste heat to run trains of moving fluidized bed dryers. The process offers a number of co-benefits, such as general savings due to lower coal usage (e.g., coal cost, ash disposal), less power required to run mills and ID fans, and lower maintenance on coal handling equipment air preheaters, etc.

Although we view this new patented technology for coal drying onsite as a promising path in the near future for generally improving boiler efficiency and obtaining some reduction in

---

<sup>63</sup> Committee on Coal Waste Impoundments, Committee on Earth Resources, Board on Earth Sciences and Resources, Division on Earth and Life Studies; *Coal Waste Impoundments, Risks, Responses, and Alternatives*; National Research Council; National Academy Press, 2002.

<sup>64</sup> DryFinishing™ is the company's name for the process. It is described here: <http://www.powermag.com/improve-plant-efficiency-and-reduce-co2-emissions-when-firing-high-moisture-coals/>

SO<sub>2</sub>, its analysis presents a number of difficulties. For instance, the degree of reduction in SO<sub>2</sub> is dependent on a number of factors. These include (1) the quality and quantity of the waste heat available at the unit, (2) the type of coal being dried (amount of bound sulfur, i.e., pyrites, moisture content), and (3) the design of the boiler (e.g., limits to steam temperatures, which can decrease due to the reduced flue gas flow through the convective pass of the boiler). We cannot assess many of these site-specific issues and we believe that requesting that the facilities in question do so would require detailed engineering analysis and extend our review time greatly. As a result of these issues, we do not further assess coal drying as part of our reasonable set of options for BART analysis. We expect that this technology may have matured enough such that it can be better assessed for the second planning period.

#### *DSI*

DSI is performed by injecting a dry reagent into the hot flue gas, which chemically reacts with SO<sub>2</sub> and other gases to form a solid product that is subsequently captured by the particulate control device. A blower delivers the sorbent from its storage silos through piping directly to the flue gas ducting via injection lances. The most commonly used sorbent is trona, a naturally occurring mineral primarily mined from the Green River Formation in Wyoming. Trona can also be processed into sodium bicarbonate, which is more reactive with SO<sub>2</sub> than trona, but more expensive. Hydrated lime is another potential sorbent but it is less frequently used and little data are available regarding its potential performance and cost. In general, trona is considered the most cost-effective of the sorbents for SO<sub>2</sub> removal. There are many examples of DSI being used on coal-fired EGUs to control SO<sub>2</sub>. However, DSI may not be technically feasible at every

coal-fired EGU. For instance, Luminant states in its response to one of our Section 114(a) letters regarding its Big Brown and Monticello units:<sup>65</sup>

Luminant commissioned the study of dry sorbent injection ("DSI") at these units in 2011. These studies determined that a very high feed rate (in the range of 20-30%) was required to achieve modest SO<sub>2</sub> removal. Further, it was determined that other economic and operational factors make the use of DSI infeasible. For example, sorbent build-up was determined to cause degraded performance of the control equipment over time, as well as significant, repeat down time on a regular basis (i.e., every few days) to remove the buildup. In addition to the high cost of the sorbent required, the disposal and transport of the used sorbent (a Texas Class 1 waste) would result in significant additional cost. Thus, the use of DSI was determined infeasible from both an operational and economic point of view, and further evaluation has been discontinued.

As a consequence of this statement, which is discussed more fully in the CBI material Luminant has submitted and in our TSD, we have concluded that DSI is not a feasible alternative for the Big Brown and Monticello facilities. For all unscrubbed, coal-fired BART-subject units other than the Big Brown and Monticello facilities, although individual installations may present technical difficulties or poor performance due to the suboptimization of one or more of the above

---

<sup>65</sup> Luminant's 6/17/14 response to EPA's 5/20/14 Section 114(a) request for information relating to the Big Brown, Martin Lake, Monticello, and Sandow generating stations.

factors, we believe that DSI is technically feasible and should be considered as a potential BART control.

### *SO<sub>2</sub> Scrubbing Systems*

In contrast to DSI, SO<sub>2</sub> scrubbing techniques utilize a large dedicated vessel in which the chemical reaction between the sorbent and SO<sub>2</sub> takes place either completely or in large part. Also in contrast to DSI systems, SO<sub>2</sub> scrubbers add water to the sorbent when introduced to the flue gas. The two predominant types of SO<sub>2</sub> scrubbing employed at coal-fired EGUs are wet FGD, and Spray Dry Absorber (SDA). More recently, Circulating Dry Scrubbers (CDS) have been introduced. The EIA reports the following types of flue gas desulfurization systems as being operational in the U.S. for 2015:

Table 8: EIA Reported Desulfurization Systems in 2015

Type	Number of installations
Wet spray tower scrubber	296
Spray dryer absorber	269
Circulating dry scrubber	50
Packed tower wet scrubber	6
Venturi wet scrubber	48
Jet bubbling reactor	31
Tray tower wet scrubber	42
Mechanically aided wet scrubber	4
DSI	106
Other	1

Unspecified	1
Total	854

Excluding the DSI installations, EIA lists 748 SO<sub>2</sub> scrubber installations in operation in 2015. Of these, 296 are listed as being spray type wet scrubbers, with an additional 42 listed as being tray type wet scrubbers.<sup>66</sup> An additional 269 are listed as being spray dry absorber types. Consequently, spray type or tray type wet scrubbers (wet FGD) account for approximately 45% of all scrubber systems, and spray dry scrubbers (SDA) account for approximately 36% of all scrubber systems that were operational in the U.S. in 2015.

We consider some of the other scrubber system types (e.g., venturi and packed wet scrubber types) to be older, outdated technologies (that are not existing controls or factor into considerations regarding existing controls) and therefore will not be considered in our BART analysis. Jet bubbling reactors and circulating dry scrubbers are relatively new technologies, with limited installations, and little information is available with which to characterize them or their suitability as a retrofit control option. Therefore, they too will not be further considered as part of our reasonable set of options for analysis for BART controls.

In summary, wet FGD and SDA installations account for approximately 81% of all scrubber installations in the U.S. and as such constitute a reasonable set of SO<sub>2</sub> scrubber control options. The vast majority of the wet FGD and SDA installations utilize limestone and lime, respectively as reagents. In addition, these technologies cover the maximum level of SO<sub>2</sub> control available. As described above, these controls are in wide use and have been retrofitted to a variety of boiler types and plant configurations. We therefore see no technical infeasibility issues and believe that

---

<sup>66</sup> Trays are often employed in spray type wet scrubbers and EIA lists some of the wet spray tower systems as secondarily including trays.

limestone wet FGD and lime SDA should be considered as potential BART controls for all of the unscrubbed coal-fired BART-eligible units.

**b. Identification of Technically Feasible SO<sub>2</sub> Retrofit Control Technologies for Gas-Fired Units that Burn Oil**

*Reduction in Fuel Oil Sulfur*

A number of the units we proposed in Table 6 as being subject to BART primarily fire gas, but have occasionally fired fuel oil in the past as reported by the EIA databases: EIA-767, EIA-906/920, and EIA-923,<sup>67</sup> which indicate the historic quantities of fuel oil burned and the type and sulfur content of that fuel oil. These units are identified below in Table 9:

Table 9: Gas Units that Occasionally Burn Oil and are Subject to BART

<b>Facility</b>	<b>Unit(s)</b>	<b>Gas Turbine</b>	<b>Steam Turbine</b>
Graham (Luminant)	2		X
Newman (El Paso Electric)	2, 3		X
O W Sommers (CPS Energy)	1, 2		X
Stryker Creek (Luminant)	ST2		X
Wilkes Power Plant (AEP)	1		X

The BART Guidelines advise that for oil-fired units, regardless of size, limits on fuel oil sulfur content should be considered in the BART evaluation.<sup>68</sup> All of the subject units are limited by permit to burning oil with a sulfur content of no more than 0.7% sulfur by weight.<sup>69</sup>

---

<sup>67</sup> EIA-767: <http://www.eia.gov/electricity/data/eia767/>. EIA-906/920 and EIA-923: <http://www.eia.gov/electricity/data/eia923/>

<sup>68</sup> 70 FR at 39171.

<sup>69</sup> In addition, the Newman units 2 and 3 are restricted to burning fuel oil for no more than 10% of their annual operating time.

In analyzing the technical feasibility under BART of these facilities burning fuel oils of sulfur contents lower than historically burned, we investigated two issues: (1) Is lower sulfur fuel oil available and what is its cost, and (2) are there any technical issues in burning a lower sulfur fuel oil that could add to the cost of that oil? All of the units have either burned Distillate Fuel Oil (DFO) or have switched between DFO and Residual Fuel Oil (RFO), thus demonstrating the ability to burn DFOs of the type under consideration for SO<sub>2</sub> BART. We therefore conclude that lower sulfur DFOs are a technically feasible retrofit control option under BART. Lower sulfur DFOs carry no capital costs. Any cost increases relate to purchase price differences.

#### *SO<sub>2</sub> Scrubber Feasibility for Gas/Oil-Fired Boilers*

We are aware of instances in which FGDs of various types have been installed or otherwise deemed feasible on a boiler that burns oil.<sup>70</sup> Consequently, we will consider the installation of various types of scrubbers to be technically feasible.

#### **c. Identification of Technically Feasible SO<sub>2</sub> Control Technologies for Scrubber Upgrades**

In our recent Texas-Oklahoma FIP,<sup>71</sup> we presented a great deal of information that concluded that the existing scrubbers for a number of facilities could be very cost-effectively upgraded.<sup>72</sup> That information is included in this proposal.<sup>73</sup> It contains a comprehensive survey

---

<sup>70</sup> Crespi, M. "Design of the FLOWPAC WFGD System for the Amager Power Plant." Power-Gen FGD Operating Experience, November 29, 2006, Orlando, FL.

Babcock and Wilcox. "Wet Flue Gas Desulfurization (FGD) Systems Advanced Multi-Pollutant Control Technology." See Page 4: "We have also provided systems for heavy oil and Orimulsion fuels."

DePriest, W; Gaikwad, R. "Economics of Lime and Limestone for Control of Sulfur Dioxide." See page 7: "A CFB unit, in Austria, is on a 275 MW size oil-fired boiler burning 1.0-2.0% sulfur oil."

<sup>71</sup> 81 FR 321.

<sup>72</sup> See information presented in Sections 6 and 7 of the Cost TSD.

<sup>73</sup> That information is included in our BART FIP TSD, Appendix B.



of available literature concerning the kinds of upgrades that have been performed by industry on scrubber systems similar to the ones installed on the units included in this proposal. We then reviewed all of the information we had at our disposal regarding the status of the existing scrubbers for each unit, including any upgrades the facility may have already installed. We finished by calculating the cost-effectiveness of scrubber upgrades, using the facility's own information, obtained as a result of our Section 114 collection efforts. The companies that supplied this information have asserted a Confidential Business Information (CBI) claim for much of it, as provided in 40 C.F.R. § 2.203(b). We therefore redacted any CBI information we utilize in our analyses, or otherwise disguised it so that it cannot be traced back to its specific source. Of the facilities we evaluated for scrubber upgrades in that action, Martin Lake Units 1, 2, and 3; and Monticello Unit 3 are subject to BART and are thus a part of this proposal.

## **2. Step 3: Evaluation of SO<sub>2</sub> Control Effectiveness**

In the following subsections, we evaluate the control levels each technically feasible technology is capable of achieving for the coal and gas units. In so doing, we consider the maximum level of control each technology is capable of delivering based on a 30 Boiler Operating Day (BOD) period. As the BART Guidelines direct, “[y]ou should consider a boiler operating day to be any 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time at the steam generating unit.”<sup>74</sup> To calculate a 30-day rolling average based on BOD, the average of the last 30 “boiler operating days” is used. In other words, days are skipped when the unit is down, as for maintenance. In effect, this provides a margin of safety by eliminating spikes that occur at the beginning and end of outages.

---

<sup>74</sup> 70 FR 39103, 39172 (July 6, 2005), [40 CFR Part 51, App. Y].

### **a. Evaluation of SO<sub>2</sub> Control Effectiveness for Coal Fired Units**

#### *Control Effectiveness of DSI*

We lack the site-specific information, which we believe requires an individual performance test, in order to be able to accurately determine the maximum DSI SO<sub>2</sub> removal efficiency for the individual units listed in Table 7. We are aware that a number of the subject-to-BART coal-fired units have conducted such testing. However, although we have examined that testing, most of the facilities have claimed it as CBI and requested protection from public disclosure as provided by 40 C.F.R. Part 2.

However, we nevertheless must evaluate DSI as a viable, proven method of SO<sub>2</sub> control. We must do the same for SO<sub>2</sub> scrubbing, and in so doing, compare the visibility benefits and costs of each technology in order to inform our proposed BART determinations. We therefore propose the following methodology:

- We will evaluate each unit at its maximum recommended DSI performance level, according to the IPM DSI documentation,<sup>75</sup> assuming milled trona: 80% SO<sub>2</sub> removal for an ESP installation and 90% SO<sub>2</sub> removal for a baghouse installation. This level of control is within the range that can be achieved by SO<sub>2</sub> scrubbers, and thus allows a better comparison of the costs of DSI and scrubbers.

---

<sup>75</sup> IPM Model – Updates to Cost and Performance for APC Technologies, Dry Sorbent Injection for SO<sub>2</sub> Control Cost Development Methodology, Final March 2013, Project 12847-002, Systems Research and Applications Corporation, Prepared by Sargent & Lundy, p. 7.

- However, (1) we do not know whether a given unit is actually capable of achieving these control levels and (2) we believe it is useful to evaluate lesser levels of DSI control (and correspondingly lower costs). We therefore also evaluate all the units at a DSI SO<sub>2</sub> control level of 50%, which we believe is likely achievable for most units.
- We invite comments on whether particular units have performed DSI testing and have concluded they cannot achieve a SO<sub>2</sub> reduction between 50% and 80/90%. Any data to support such a conclusion should be submitted along with those comments.

#### *Control Effectiveness of Wet FGD and SDA*

We have assumed a wet FGD level of control to be a maximum of 98% not to go below 0.04 lbs/MMBtu, in which case, we assume the percentage of control equal to 0.04 lbs/MMBtu. As we discuss later in this proposal, we will conduct our wet FGD control cost analysis using the wet FGD cost algorithms, as employed in version 5.13 of our IPM model.<sup>76</sup> The IPM wet FGD Documentation states: “The least squares curve fit of the data was defined as a "typical" wet

---

<sup>76</sup> IPM Model – Updates to Cost and Performance for APC Technologies, Dry Sorbent Injection for SO<sub>2</sub> Control Cost Development Methodology, Final March 2013, Project 12847-002, Systems Research and Applications Corporation, Prepared by Sargent & Lundy. Documentation for v.5.13: Chapter 5: Emission Control Technologies, Attachment 5-5: DSI Cost Methodology, downloaded [https://www.epa.gov/sites/production/files/2015-08/documents/attachment\\_5-5\\_dsi\\_cost\\_methodology.pdf](https://www.epa.gov/sites/production/files/2015-08/documents/attachment_5-5_dsi_cost_methodology.pdf).

IPM Model – Updates to Cost and Performance for APC Technologies, SDA FGD Cost Development Methodology, Final March 2013, Project 12847-002, Systems Research and Applications Corporation, Prepared by Sargent & Lundy. Documentation for v.5.13: Chapter 5: Emission Control Technologies, Attachment 5-2: SDA FGD Cost Methodology, downloaded from [https://www.epa.gov/sites/production/files/2015-08/documents/attachment\\_5-2\\_sda\\_fgd\\_cost\\_methodology\\_3.pdf](https://www.epa.gov/sites/production/files/2015-08/documents/attachment_5-2_sda_fgd_cost_methodology_3.pdf).

IPM Model – Updates to Cost and Performance for APC Technologies, wet FGD Cost Development Methodology, Final March 2013, Project 12847-002, Systems Research and Applications Corporation, Prepared by Sargent & Lundy. Documentation for v.5.13: Chapter 5: Emission Control Technologies, Attachment 5-1: Wet FGD Cost Methodology, downloaded from [https://www.epa.gov/sites/production/files/2015-08/documents/attachment\\_5-1\\_wet\\_fgd\\_cost\\_methodology.pdf](https://www.epa.gov/sites/production/files/2015-08/documents/attachment_5-1_wet_fgd_cost_methodology.pdf).

FGD retrofit for removal of 98% of the inlet sulfur. It should be noted that the lowest available SO<sub>2</sub> emission guarantees, from the original equipment manufacturers of wet FGD systems, are 0.04 lb/MMBtu.” As we established in our Oklahoma FIP,<sup>77</sup> this level of control is achievable with wet FGD. This level of control was also employed in our recent Texas-Oklahoma FIP.<sup>78</sup> We received a comment challenging this level of control and we responded to that comment in our final action on our Texas-Oklahoma FIP and incorporate that response in this proposed action.<sup>79</sup> We continue to conclude that our proposed level of control for wet FGD is reasonable.

As with our Oklahoma FIP, we have assumed a SDA level of control equal to 95%, unless that level of control would fall below an outlet SO<sub>2</sub> level of 0.06 lb/MMBtu, in which case, we assume the percentage of control equal to 0.06 lbs/MMBtu. See our response to comments in our previous Oklahoma FIP.<sup>80</sup> In that FIP, we finalized the same emission limit of 0.06 lbs/MMBtu on a 30 BOD average for 6 coal-fired EGUs. We justified those limits based on the same SDA technology, using a combination of industry publications and real world monitoring data. Much of that information is summarized in our response to a comment to that action<sup>81</sup> and in our TSD. We continue to conclude that our proposed level of control for SDA is reasonable.

## **b. Evaluation of SO<sub>2</sub> Control Effectiveness for Gas Fired Units**

---

<sup>77</sup> As discussed previously in our TSD for that action, control efficiencies reasonably achievable by dry scrubbing and wet scrubbing were determined to be 95% and 98% respectively. 76 FR 81742); Oklahoma v. EPA, 723 F.3d 1201 (July 19, 2013), cert. denied (U.S. May 27, 2014).

<sup>78</sup> 81 FR 321.

<sup>79</sup> That information is included in our BART FIP TSD, Appendix A.

<sup>80</sup> 76 FR 81728.

<sup>81</sup> Response to Technical Comments for Sections E through H of the Federal Register Notice for the Oklahoma Regional Haze and Visibility Transport Federal Implementation Plan, Docket No. EPA-R06-OAR-2010-0190, 12/13/2011. See comment and response beginning on page 91.

The control effectiveness of switching from a higher sulfur fuel oil to a lower sulfur fuel oil lies in the reduction in sulfur emissions. The emissions reduction depends on the percentage reduction from the sulfur contents of the fuel oil that forms the SO<sub>2</sub> baseline to the replacement fuel oil. Ultimately, the highest level of control would result from a switch from the highest percentage sulfur the units are permitted to burn, 0.7% to the lowest DFO available, ultra-low sulfur diesel, which has a sulfur content of 0.0015%. This would equate to a control effectiveness of 99.8%. Lesser levels of controls are also possible. We will evaluate a range of control effectiveness in switching to lower sulfur fuel oils in the next section.

Because we are unaware of any scrubber installations on oil fired units in the U.S., we have no information on their control effectiveness. However, we see no technical reason why the control effectiveness of FGDs installed on gas-fired units that occasionally burn fuel oil should not be equal to that of FGDs installed on coal-fired units.

### **3. Step 4: Evaluate Impacts and Document the Results for SO<sub>2</sub>**

The BART Guidelines offers the following with regard to how Step 4 should be conducted:<sup>82</sup>

After you identify the available and technically feasible control technology options, you are expected to conduct the following analyses when you make a BART determination:

Impact analysis part 1: Costs of compliance,

---

<sup>82</sup> 70 FR 39166.

Impact analysis part 2: Energy impacts, and

Impact analysis part 3: Non-air quality environmental impacts.

Impact analysis part 4: Remaining useful life.

We evaluate the cost of compliance on a unit-by unit basis, because control cost analysis depends on specific factors that can vary from unit to unit. However, we generally evaluate the energy impacts, non-air quality impacts, and the remaining useful life for all the units in question together because in this instance there are no appreciable differences in these factors from unit to unit.<sup>83</sup>

In developing our cost estimates for the units in Table 7, we rely on the methods and principles contained within the EPA Air Pollution Control Cost Manual (the Control Cost Manual, or Manual).<sup>84</sup> We proceed in our SO<sub>2</sub> costing analyses by examining the current SO<sub>2</sub> emissions and the level of SO<sub>2</sub> control, if any, for each of the units listed in Table 7. For the coal units without any SO<sub>2</sub> control, we calculate the cost of installing DSI, a SDA scrubber, and a wet FGD scrubber. For the gas units that burn oil, we evaluate the cost of switching to lower sulfur fuel oils and installing scrubbers.

In order to estimate the costs for DSI, SDA scrubbers, and wet FGD scrubbers, we programmed the DSI, SDA and wet FGD cost algorithms, as employed in version 5.13 of our IPM model, referenced above, into three spreadsheets. These cost algorithms calculate the Total Project Cost (TPC), Fixed Operating and Maintenance (Fixed O&M) costs, and Variable

---

<sup>83</sup> To the extent these factors inform the cost of controls, consistent with the BART Guidelines, they do inform our considerations on a unit-by-unit basis.

<sup>84</sup> EPA Air Pollution Control Cost Manual, Sixth Edition, EPA/452/B-02-001, January 2002 available at [http://www.epa.gov/ttn/catc1/dir1/c\\_allchs.pdf](http://www.epa.gov/ttn/catc1/dir1/c_allchs.pdf).

Operating and Maintenance (Variable O&M) costs. We then performed DSI, SDA and wet FGD cost calculations for each unit listed in Table 7 that did not already have SO<sub>2</sub> control.<sup>85</sup> These cost models were based on costs escalated to 2012 dollars.<sup>86</sup> Because the IPM 5-13 cost algorithms were calculated in 2012 dollars, we have escalated them to 2016, using the annual Chemical Engineering Plant Cost Indices (CEPCI).

#### **a. Impact Analysis Part 1: Cost of Compliance for DSI, SDA, and Wet FGD**

As we discuss above and in our Cost TSD, we evaluated each unit at its maximum recommended level of control, considering the type of SO<sub>2</sub> control device. Below, we present a summary of our DSI, SDA, and wet FGD cost analysis<sup>87</sup>:

Table 10. Summary of DSI, SDA, and Wet FGD Cost Analysis

<b>Facility</b>	<b>Unit</b>	<b>Control</b>	<b>Control level (%)</b>	<b>SO<sub>2</sub> reduction (tpy)</b>	<b>2016 Annualized Cost</b>	<b>2016 Cost Effectiveness (\$/ton)</b>	<b>2016 Incremental Cost-Effectiveness (\$/ton)</b>
Big Brown	1	DSI	50	14,448	\$29,468,587	\$2,040	
		DSI	90	26,006	\$72,131,749	\$2,774	\$3,691
		SDA	95	27,453	\$35,297,532	\$1,286	-\$25,456
		Wet FGD	98	28,320	\$33,673,102	\$1,189	-\$1,874

<sup>85</sup> These spreadsheets are entitled, “DSI Cost IPM 5-13 TX BART.xlsx,” “SDA Cost IPM 5-13 TX BART.xlsx,” and “Wet FGD Cost IPM 5-13 TX BART.xlsx,” and are located in our Docket.

<sup>86</sup> Ibid., p.1: “The data was converted to 2012 dollars based on the Chemical Engineering Plant Index (CEPI) data.”

<sup>87</sup> In this table, the capital cost is the total cost of constructing the facility. The annualized cost is the sum of the annualized capital cost and the annualized operational cost. See our Cost TSD for more information on how these costs were calculated.

	2	DSI	50	15,320	\$29,342,350	\$1,915	
		DSI	90	27,576	\$71,322,593	\$2,586	\$3,425
		SDA	95	29,108	\$35,359,239	\$1,215	-\$23,475
		Wet FGD	97.9	29,998	\$33,817,952	\$1,127	-\$1,732
Monticello	1	DSI	50	4,787	\$11,408,872	\$2,383	
		DSI	90	8,617	\$25,409,128	\$2,949	\$3,655
		SDA	95	9,095	\$24,294,319	\$2,671	-\$2,332
		Wet FGD	97	9,286	\$25,236,699	\$2,718	\$4,934
	2	DSI	50	4,129	\$9,742,648	\$2,360	
		DSI	90	7,431	\$21,418,734	\$2,882	\$3,536
		SDA	95	7,844	\$23,126,113	\$2,948	\$4,134
		Wet FGD	96.8	7,995	\$24,233,133	\$3,031	\$7,331
Coletto Creek	1	DSI	50	7,376	\$16,246,169	\$2,203	
		DSI	90	13,277	\$34,841,379	\$2,624	\$3,151
		SDA	92.4	13,632	\$29,445,018	\$2,160	-\$15,201
		Wet FGD	94.9	14,005	\$29,786,106	\$2,127	\$914
Harrington	061B	DSI	50	2,477	\$9,187,608	\$3,710	
		DSI	80	3,962	\$16,073,779	\$4,057	\$4,637
		SDA	90.2	4,466	\$17,455,679	\$3,909	\$2,742
	062B	DSI	50	2,455	\$6,524,937	\$2,658	
		DSI	88.9*	4,364	\$11,981,111	\$2,746	\$2,858
		SDA	88.9	4,364	\$18,240,127	\$4,180	N/A
J T Deely	1	DSI	50	3,072	\$8,854,319	\$2,883	
		DSI	90	5,529	\$18,071,878	\$3,269	\$3,752
		SDA	91.3	5,609	\$21,689,526	\$3,867	\$45,221
		Wet FGD	94.2	5,787	\$22,555,395	\$3,898	\$4,864
	2	DSI	50	3,222	\$9,865,798	\$3,062	
		DSI	90	5,800	\$20,229,233	\$3,488	\$4,020
		SDA	91.3	5,884	\$21,812,518	\$3,707	\$18,849



		Wet FGD	94.2	6,070	\$22,530,901	\$3,712	\$3,862
Welsh	1	DSI	50	3,343	\$8,963,761	\$3,469	
		DSI	87.2*	5,832	\$23,090,408	\$3,960	\$5,676
		SDA	87.2	5,832	\$22,697,048	\$3,892	N/A
		Wet FGD	91.5	6,116	\$23,998,161	\$3,924	\$4,581
W. A. Parish	5	DSI	50	6,712	\$15,002,337	\$2,235	
		DSI	90	12,081	\$30,865,711	\$2,555	\$2,955
		SDA	92.1	12,364	\$31,195,787	\$2,523	\$1,166
		Wet FGD	94.7	12,717	\$30,735,030	\$2,417	-\$1,305
	6	DSI	50	7,525	\$16,014,988	\$2,128	
		DSI	90	13,545	\$33,302,528	\$2,459	\$2,872
		SDA	92.1	13,862	\$32,758,784	\$2,363	-\$1,715
		Wet FGD	94.7	14,258	\$32,215,226	\$2,259	-\$1,373

\* DSI control level limited to that of SDA.

#### **b. Impact Analysis Part 1: Cost of Compliance for Scrubber Upgrades**

In our BART FIP TSD, we analyze those units listed in Table 7 with an existing SO<sub>2</sub> scrubber in order to determine if cost-effective scrubber upgrades are available. Of our subject-to-BART units, Martin Lake Units 1, 2, 3; Monticello Unit 3, and Fayette Units 1 and 2 are currently equipped with wet FGDs. Of these, all but the Fayette units were analyzed for scrubber upgrades in our Texas-Oklahoma FIP. For all but the Fayette units, we propose to adopt the total annualized cost calculations used to make the cost-effectiveness calculations in our Texas-Oklahoma FIP in this action. We acknowledge that these costs could change slightly, due to changes in the costs of various materials and services. However, these costs were

calculated in 2013 dollars. Escalating them to 2015 dollars would result in a reduction in cost, which we conservatively do not take into consideration.<sup>88</sup>

In our Texas-Oklahoma FIP action, after responding to comments we revised our proposed cost-effectiveness basis from where all scrubber upgrades were less than \$600/ton, to where all scrubber upgrades ranged from between \$368/ton to \$910/ton.<sup>89</sup> As with our Texas-Oklahoma FIP, we are limited in what information we can include in this section, because we used information that was claimed as CBI. This information was submitted in response to our Section 114(a) requests. The following summary is based on information not claimed as CBI.

- The absorber system had either already been upgraded to perform at an SO<sub>2</sub> removal efficiency of at least 95%, or it could be upgraded to perform at that level using proven equipment and techniques.
- The SO<sub>2</sub> scrubber bypass could be eliminated, and the additional flue gas could be treated by the absorber system with at least a 95% removal efficiency.
- Additional modifications necessary to eliminate the bypass, such as adding fan capacity, upgrading the electrical distribution system, and conversion to a wet stack could be performed using proven equipment and techniques.
- The additional SO<sub>2</sub> emission reductions resulting from the scrubber upgrade are substantial, ranging from 68% to 89% reduction from the current emission levels, and are cost-effective.

---

<sup>88</sup> The CEPCI for 2013 is 567.3 and that for 2015 is 556.3. Therefore, the costs would be multiplied by a factor of 556.8/567.3, which is approximately 0.98.

<sup>89</sup> 81 FR 318.

We now update these calculations for 2011-2015 data.<sup>90</sup> The revised scrubber upgrade results for Martin Lake Units 1, 2, and 3; and Monticello Unit 3 are presented below in Table 11:

Table 11. Summary of Updated Scrubber Upgrade Results

<b>Unit</b>	<b>2011-2015 3-yr Avg. SO<sub>2</sub> Emissions (eliminate max and min) (tons)</b>	<b>SO<sub>2</sub> Emissions at 95% Control (tons)</b>	<b>SO<sub>2</sub> Emissions Reduction Due to Scrubber Upgrade (tons)</b>	<b>SO<sub>2</sub> Emission Rate at 95% Control (lbs/MMBtu)</b>
Monticello 3	8,136	1,180	6,956	0.05
Martin Lake 1	19,040	3,208	15,832	0.12
Martin Lake 2	17,973	3,393	14,580	0.12
Martin Lake 3	16,113	2,591	13,522	0.11
Total SO <sub>2</sub> Removed			50,890	

As we note above, we updated the cost-effectiveness for each of these units. Because those calculations depended on information claimed by the companies as CBI we cannot present it here, except to note that in all cases, the cost-effectiveness was \$1,156/ton or less. We invite the facilities listed above to make arrangements with us to view our complete updated cost analysis for their units.

The Fayette Units 1 and 2 are currently equipped with high performing wet FGDs. Both units have demonstrated the ability to maintain a SO<sub>2</sub> 30 BOD average below 0.04 lbs/MMBtu for years at a time.<sup>91</sup> As we discuss above, we evaluate BART demonstrating that retrofit wet

<sup>90</sup> See Coal vs CEM data 2011-2015.xlsx.

<sup>91</sup> See our BART FIP TSD for graphs of this data.

FGDs should be evaluated at 98% control not to go below 0.04 lbs/MMBtu. Because the Fayette units are performing below this level, we propose that no scrubber upgrades are necessary. We propose to find that the Fayette Units 1 and 2 maintain a 30 Boiler Operating Day rolling average SO<sub>2</sub> emission rate of 0.04 lbs/MMBtu based on the actual emissions data we present above. We believe that based on its demonstrated ability to maintain an emission rate below this value on a 30 BOD basis, it can consistently achieve this emission level.

### **c. Impact Analysis Part 1: Cost of Compliance for Gas Units that Burn Oil**

As we noted in Section III.C.1.b, a number of the units we proposed in Table 9 as being subject to BART primarily fire gas, but have occasionally fired fuel oil in the past as reported by the EIA. These units are limited by their permits to burning oil with a sulfur content of no more than 0.7% sulfur by weight. We proposed to consider both a reduction in fuel oil sulfur and SO<sub>2</sub> scrubbers as potential BART controls. Below we consider the cost of these potential controls.

#### *Reduction in Fuel Oil Sulfur*

In order to determine the cost of these facilities switching to lower sulfur content fuel oils, we sent the Graham, Newman, Stryker Creek, and the Wilkes facilities Section 114 letters requesting certain information.<sup>92</sup> We received very limited information in response to one of our questions concerning the present cost of the historic fuel oil burned, and the cost of various lower sulfur replacement fuel oils. Because of this, we were unable to compile facility-specific information on the cost of switching to lower sulfur fuel oils. Consequently, we considered the

---

<sup>92</sup> Copies of these letters and the facilities' responses are in our docket. We inadvertently did not send the O W Sommers a letter.

best available information by consulting more general information from the EIA, which reports the prices for various refinery petroleum products on a monthly and annual basis. Below is a summary of various distillate and residual fuel oil products for 2001 to 2015, averaged across the U.S.<sup>93</sup>

Table 12: Selected EIA Reported Annual Refiner Petroleum Prices

<b>Date</b>	<b>West Texas Intermediate Crude Oil – Cushing Oklahoma (\$/bbl)</b>	<b>U.S. No 2 Diesel Wholesale/Resale Price by Refiners (\$/Gallon)</b>	<b>U.S. No. 2 Fuel Oil Wholesale/Resale Price by Refiners (\$/Gallon)</b>	<b>U.S. No 4 Distillate Wholesale/Resale Price by Refiners (\$/Gallon)</b>
2015	48.66	1.667	1.565	1.215
2014	93.17	2.812	2.741	2.333
2013	97.98	3.028	2.966	2.767
2012	94.05	3.109	3.031	
2011	94.88	3.034	2.907	2.801
2010	79.48	2.214	2.147	
2009	61.95	1.713	1.657	1.561
2008	99.67	2.994	2.745	2.157
2007	72.34	2.203	2.072	1.551
2006	66.05	2.012	1.834	1.395
2005	56.64	1.737	1.623	1.377
2004	41.51	1.187	1.125	1.033
2003	31.08	0.883	0.881	0.793
2002	26.18	0.724	0.694	0.663
2001	25.98	0.784	0.756	0.697
2000	30.38	0.898	0.886	0.778

Lacking facility-specific pricing information, for the purposes of calculating the cost of compliance, we make the following assumptions:

---

<sup>93</sup> EIA Refiner Petroleum Product Prices by Sales Type, available here: [http://www.eia.gov/dnav/pet/pet\\_pri\\_refoth\\_dcu\\_nus\\_a.htm](http://www.eia.gov/dnav/pet/pet_pri_refoth_dcu_nus_a.htm); [http://www.eia.gov/dnav/pet/pet\\_pri\\_spt\\_s1\\_a.htm](http://www.eia.gov/dnav/pet/pet_pri_spt_s1_a.htm)

- No. 4 distillate is the type of fuel oil currently available that most closely approximates the types of fuel oil that were historically burned by the facilities. It is available in a range of sulfur up to the facilities' permitted maximum of 0.7% sulfur by weight or 7,000 ppm. We will use the cost of this fuel oil in constructing "business as usual" scenarios of the annual cost of fuel oil.
- No. 2 fuel oil is available at approximately 3,000 ppm, which roughly corresponds to the sulfur level present in No. 2 fuel oil prior to our implementation of the Ultra-Low-Sulfur Diesel (ULSD) regulations.<sup>94</sup> We will use the cost of this fuel oil in constructing a "medium control" annual cost of fuel oil.
- No. 2 diesel fuel corresponds to ULSD, with a sulfur content of 15 ppm. We will use the cost of this fuel oil in constructing a "high control" annual cost of fuel oil.

Having identified a reasonable set of historical and lower sulfur fuel oils, we turned to the matter of establishing SO<sub>2</sub> baselines. We would expect that regardless of the baseline selected, a cost-effectiveness calculation that simply depended on differing fuel oil costs and the resulting reductions in SO<sub>2</sub>, would result in the same value. In other words, the cost-effectiveness in \$/ton is independent of the SO<sub>2</sub> baseline, since *in this case*, it is calculated on a unit basis—the increased cost in burning a unit of fuel divided by the increased reduction in the resulting SO<sub>2</sub>. While the above is true, reported data for these units does not match this expectation. This can be illustrated by examining selected EIA and emissions data for the Graham Unit 2:

---

<sup>94</sup> 69 FR 39073: "Both high sulfur No. 2-D and No. 2 fuel oil must contain no more than 5000 ppm sulfur, 131 and currently [as of the date of our final rule, 6/29/04] averages 3000 ppm nationwide."

Table 13: Graham Unit 2 Example Discordance in Fuel Oil Burned and Reported SO<sub>2</sub>

<b>Date (month/year)</b>	<b>Quantity Fuel Oil Burned (bbls)</b>	<b>Reported SO<sub>2</sub> for month (tons)</b>	<b>Reported EIA sulfur content (wt %)</b>
Mar-02	9,800	21.614	0.65
Feb-03	8,400	90.389	0.66
Jun-12	18,177	0.064	0.50
Jul-12	5,657	0.07	0.50

As can be seen from the above table, even though the reported sulfur content of the fuel oil in March 2002 and February 2003 was approximately the same, and the quantity burned was fairly close, the reported SO<sub>2</sub> emissions were significantly different. Similarly, although the amount of fuel oil burned in June 2012 was more than three times that burned in July 2012 (at the same sulfur content), the reported SO<sub>2</sub> emissions in June 2012 were less than that in July 2012. Also, although the fuel oil sulfur content in the 2012 examples was only slightly less than that in the 2002/2003 examples, and the amount of fuel oil burned was the same order of magnitude, the resulting reported SO<sub>2</sub> emissions in 2012 were three orders of magnitude less than that in 2002/2003. We conclude that either the values for the EIA fuel quantities, the EIA fuel oil sulfur contents, and/or the reported SO<sub>2</sub> emissions are in error. Further examination of the CAMD emissions data for Graham and Stryker revealed that the data contained a large amount of substitute data for SO<sub>2</sub> emissions and heat input during periods when the units burned fuel oil.

As a consequence of this discordance between the type and amount of fuel oil burned and the reported SO<sub>2</sub> emissions, we cannot rely on historical SO<sub>2</sub> emissions to construct a baseline,

because a barrel of fuel oil with a given sulfur content does not result in a consistent reported SO<sub>2</sub> value over time. Instead, we will conduct our cost-effectiveness analysis on the basis of unit values of 1,000 barrels, using the following assumptions:

- Fuel oil costs will be based on the 2015 U.S. average prices as reported in Table 12 for No. 4 distillate at 0.7 wt. % (the permitted maximum for all units) as the current business as usual fuel, No. 2 fuel oil at 0.3wt. % as the moderate control option, and No. 2 diesel at 0.0015% as the high control option.
- The emission factor for calculating the tons of sulfur emitted by the three fuel oils are taken from AP 42, *Compilation of Air Pollutant Emissions Factors*.<sup>95</sup>

Below is the result of that calculation:

Table 14: Cost Effectiveness of Switching to Lower Sulfur Fuel Oils

<b>Level of Control</b>	<b>Cost for 1,000 barrels baseline (\$/yr)</b>	<b>Tons reduced for 1,000 barrels</b>	<b>Cost effectiveness for 1,000 barrels (\$/ton)</b>	<b>Incremental Cost-Effectiveness (\$/ton)</b>
Business as usual (No. 4 distillate \$1.215/gal)	\$51,030	N/A	N/A	
Moderate control (No. 2 fuel oil \$1.565/gal)	\$65,730	1.26	\$11,218	
High control (ULSD \$1.667/gal)	\$70,014	2.20	\$8,627	-\$2,756

---

<sup>95</sup> The emission factor (lb/10<sup>3</sup> gal) used is 150 X S, where S = weight % sulfur, taken from AP 42, Fifth Edition, Volume 1, Chapter 1: External Sources, Section 1.3, Fuel Oil Combustion, available here: <https://www3.epa.gov/ttn/chief/ap42/ch01/index.html>. Boilers > 100 Million Btu/hr, No. 4 oil fired.



We suspect our price information for ULSD may be high, as the Wilkes facility indicated in its reply to our Section 114 request that its 8/12/16 contract for oil was for ULSD, which had an index price of \$1.423/gallon. Assuming this price and retaining the same price for our business as usual No. 4 distillate fuel oil of \$1.215/gallon, results in a cost-effectiveness of \$3,970/ton—a significant improvement in cost-effectiveness. We invite the affected facilities to provide site-specific information for delivery of ULSD.

### *Scrubber Retrofits*

Elsewhere in our proposal, we conclude that certain types of wet scrubbers were technically feasible as potential control options for gas boilers that occasionally burn oil, similar to the ones under BART review here. Were we to calculate the cost-effectiveness of a wet FGD, similar to those under consideration for the coal units undergoing BART review, we could expect that the capital and operating costs would be on the same order, as displayed in Table 10. It is a straightforward exercise to demonstrate that the installation of such a scrubber on any of the gas-fired units that occasionally burn oil would result in a very high cost-effectiveness value.

For instance, taking the smallest total annualized wet FGD cost in Table 10, corresponding to the Harrington Unit 0161B (approximately the same size as the Graham Unit 2), results in a value of \$19,145,500. Assuming a 98% reduction from a baseline equal to the largest annual SO<sub>2</sub> emissions from any of the gas units, 1,287 tons/year (Graham Unit 2, 2001), results in a SO<sub>2</sub> reduction of 1,261 tons/year. The cost-effectiveness is then \$15,183/ton, which is very high for a SO<sub>2</sub> scrubber. In addition, the annual SO<sub>2</sub> values for Graham Unit 2 from 2002 to 2015, and the annual SO<sub>2</sub> values for the remaining units, have always been an order of

magnitude less than the 2001 Graham Unit 2 value. Although we have not modeled the visibility benefit of installing SO<sub>2</sub> scrubbers on these units, the visibility benefit from scrubbers is estimated to be slightly less than the amount of benefit estimated from switching to ULSD.<sup>96</sup>

#### **4. Impact Analysis Parts 2, 3, and 4: Energy and Non-air Quality Environmental Impacts, and Remaining Useful Life**

Regarding the analysis of energy impacts, the BART Guidelines advise, “You should examine the energy requirements of the control technology and determine whether the use of that technology results in energy penalties or benefits.”<sup>97</sup> As discussed above in our cost analyses for DSI, SDA, and wet FGD, our cost model allows for the inclusion or exclusion of the cost of the additional auxiliary power required for the pollution controls we considered to be included in the variable operating costs. We chose to include this additional auxiliary power in all cases. Consequently, we believe that any energy impacts of compliance have been adequately considered in our analyses.

Regarding the analysis of non-air quality environmental impacts, the BART Guidelines advise<sup>98</sup>:

Such environmental impacts include solid or hazardous waste generation and discharges of polluted water from a control device. You should identify any significant or unusual environmental impacts associated with a control alternative

---

<sup>96</sup> For example, switching from 0.7% sulfur fuel oil to ULSD at 0.0015% sulfur results in a reduction in sulfur emissions of 99.8% compared to an estimated 98% reduction due to the use of a scrubber.

<sup>97</sup> 70 FR 39103, 39168 (July 6, 2005), [40 CFR Part 51, App. Y.].

<sup>98</sup> 70 FR at 39169 (July 6, 2005), [40 CFR Part 51, App. Y.].

that have the potential to affect the selection or elimination of a control alternative. Some control technologies may have potentially significant secondary environmental impacts. Scrubber effluent, for example, may affect water quality and land use. Alternatively, water availability may affect the feasibility and costs of wet scrubbers. Other examples of secondary environmental impacts could include hazardous waste discharges, such as spent catalysts or contaminated carbon. Generally, these types of environmental concerns become important when sensitive site-specific receptors exist or when the incremental emissions reductions potential of the more stringent control is only marginally greater than the next most-effective option. However, the fact that a control device creates liquid and solid waste that must be disposed of does not necessarily argue against selection of that technology as BART, particularly if the control device has been applied to similar facilities elsewhere and the solid or liquid waste is similar to those other applications. On the other hand, where you or the source owner can show that unusual circumstances at the proposed facility create greater problems than experienced elsewhere, this may provide a basis for the elimination of that control alternative as BART.

The SO<sub>2</sub> control technologies we considered in our analysis – DSI and scrubbers – are in wide use in the coal-fired electricity generation industry. Both technologies add spent reagent to the waste stream already generated by the facilities we analyzed, but do not present any unusual environmental impacts. As discussed below in our cost analyses for DSI and SDA SO<sub>2</sub> scrubbers, our cost model includes waste disposal costs in the variable operating costs.

Consequently, we believe that with one possible exception, any non-air quality environmental impacts have been adequately considered in our analyses. We are aware that the Harrington facility has instituted a water recycling program and obtains some of its water from the City of Amarillo.<sup>99</sup> Due to potential non-air quality concerns, we limit our SO<sub>2</sub> control analysis for Harrington to DSI and dry scrubbers.

Regarding the remaining useful life, the BART Guidelines advise:<sup>100</sup>

You may decide to treat the requirement to consider the source's "remaining useful life" of the source for BART determinations as one element of the overall cost analysis. The "remaining useful life" of a source, if it represents a relatively short time period, may affect the annualized costs of retrofit controls. For example, the methods for calculating annualized costs in EPA's OAQPS Control Cost Manual require the use of a specified time period for amortization that varies based upon the type of control. If the remaining useful life will clearly exceed this time period, the remaining useful life has essentially no effect on control costs and on the BART determination process. Where the remaining useful life is less than the time period for amortizing costs, you should use this shorter time period in your cost calculations.

We are unaware that any of the facilities we have analyzed for BART have entered into

---

<sup>99</sup> <http://www.powermag.com/xcel-energys-harrington-generating-station-earns-powder-river-basin-coal-users-group-award/>.

<sup>100</sup> 70 FR 39103, 39169, [40 CFR Part 51, App. Y.].

an enforceable document to shut down the applicable units earlier than what would occur under our assumed 30-year operational life.<sup>101</sup> As we stated in our Oklahoma FIP,<sup>102</sup> we noted that scrubber vendors indicate that the lifetime of a scrubber is equal to the lifetime of the boiler, which might easily be well over 60 years. We identified specific scrubbers installed between 1975 and 1985 that were still in operation. Because a DSI system is relatively simple and reliable, we have no reason to conclude that its service life would be any less than what we typically use for scrubber cost analyses. Because none of the facilities involved have entered into enforceable documents to shut down the applicable units earlier, we will continue to use a 30-year equipment life for DSI, scrubber retrofits, and scrubber upgrades, as we believe that is proper.

## **5. Step 5: Evaluate Visibility Impacts**

Please see the BART Modeling TSD, where we describe in detail the various modeling runs we conducted, our methodology and selection of emission rates, modeling results, and final modeling analysis that we used to evaluate the benefits of the proposed controls and their associated emission decreases on visibility impairment values. Below we present a summary of our analysis and our proposed findings regarding the estimated visibility benefits of emission reductions based on the CALPUFF and/or CAMx modeling results.

---

<sup>101</sup> We received a November 21, 2016 letter from the source owner regarding Parish Units 5 & 6. The letter, now added to the docket, explains the units have natural gas firing capabilities and expresses interest in obtaining flexibility to avoid BART or obtaining multiple options for complying with BART. While we acknowledge this interest, the letter does not provide or commit to any specifics in furtherance of the BART analysis that EPA is now required to conduct under the BART Guidelines.

<sup>102</sup> Response to Technical Comments for Sections E. through H. of the Federal Register Notice for the Oklahoma Regional Haze and Visibility Transport Federal Implementation Plan, Docket No. EPA-R06-OAR-2010-0190, 12/13/2011. See discussion beginning on page 36.

**a. Visibility Benefits of DSI, SDA, and Wet FGD for Coal-Fired Units**

We evaluated the visibility benefits of DSI, for the twelve units depicted in Tables 15 and 16 below that currently have no SO<sub>2</sub> control. We evaluated all the units using the control levels we employed in our control cost analyses. In summary, we evaluated these units at a DSI SO<sub>2</sub> control level of 50%, which we believe is likely achievable for any unit. At the lower performance level we assumed, we conclude that the corresponding visibility benefits from DSI in most cases would be close to half of the benefits from scrubbers resulting in the visibility benefits from scrubber retrofits being much more beneficial. We also evaluated the visibility benefits for scrubber retrofits (wet FGD and SDA) for these same units, assuming the same control levels corresponding to SDA and wet FGD that we used in our control cost analyses. For those sources that are within 300 to 400 km of a Class I area, we utilized CALPUFF and CAMx modeling to assess the visibility benefit of potential controls. For the remaining coal-fired sources (J T Deely, Coletto Creek, Fayette and W A Parish), only CAMx modeling was utilized as these sources are located at much greater distances to the nearest Class I areas. In evaluating the impacts and benefits of potential controls, we utilized a number of metrics, including change in deciviews and number of days impacted over 0.5 dv and 1.0 dv. Consistent with the BART Guidelines, the visibility impacts and benefits modeled in CALPUFF and CAMx are calculated as the change in deciviews compared against natural visibility conditions.<sup>103</sup> We note that the high control scenario modeling for Fayette units 1 and 2 demonstrate the benefit from existing high performing controls. As discussed elsewhere, we found that for these units no additional controls or upgrades were necessary. For a full discussion of our review of all the modeling

---

<sup>103</sup> 40 CFR 51 Appendix Y, IV.D.5: "Calculate the model results for each receptor as the change in deciviews compared against natural visibility conditions."

results, and factors that we considered in evaluating and weighing all the results, see our BART Modeling TSD. Below, we present a summary of some of those visibility benefits at the Class I areas most impacted by each source:

Table 15: Visibility Benefit of Retrofit Controls: Coal-Fired Units (CAMx modeling)

Facility Name	Emission Unit	Class I area	Metric	Visibility impact			Visibility Benefit	
				Baseline	DSI (50%)	WFGD(98%)	DSI benefit	WFGD benefit
Big Brown	Source (Unit 1 and 2)	WIMO	Max dv	4.017	2.249	0.474	1.768	3.542
			Days > 0.5 dv	65	33	0	32	65
			Days>1.0 dv	33	13	0	20	33
		CACR	Max dv	3.775	2.539	0.787	1.236	2.988
			Days > 0.5 dv	91	62	4	29	87
			Days>1.0 dv	57	21	0	36	57
	Unit 1	WIMO	Max dv	2.154	1.168	0.245	0.986	1.909
			Days > 0.5 dv	33	13	0	20	33
			Days>1.0 dv	12	1	0	11	12
		CACR	Max dv	2.016	1.327	0.409	0.688	1.606
			Days > 0.5 dv	58	22	0	36	58
			Days>1.0 dv	17	4	0	13	17
	Unit 2	WIMO	Max dv	2.175	1.181	0.235	0.994	1.940
			Days > 0.5 dv	34	13	0	21	34
			Days>1.0 dv	12	1	0	11	12
		CACR	Max dv	2.033	1.338	0.391	0.695	1.642
			Days > 0.5 dv	58	23	0	35	58
			Days>1.0 dv	17	4	0	13	17
Monticello	Source (Unit 1,2 and 3)	CACR	Max dv	10.498	6.121	2.079	4.377	8.419
			Days > 0.5 dv	152	107	28	45	124
			Days>1.0 dv	111	54	8	57	103
		WIMO	Max dv	5.736	2.769	0.774	2.968	4.962
			Days > 0.5 dv	67	35	4	32	63
			Days>1.0 dv	40	14	0	26	40
	Unit 1	CACR	Max dv	4.516	3.123	0.733	1.393	3.783
			Days > 0.5 dv	79	43	3	36	76
			Days>1.0 dv	32	16	0	16	32
		WIMO	Max dv	2.241	1.290	0.252	0.951	1.989
			Days > 0.5 dv	30	10	0	20	30

	Unit 2	CACR	Days>1.0 dv	8	2	0	6	8
			Max dv	4.487	3.065	0.563	1.422	3.924
			Days > 0.5 dv	78	42	1	36	77
		WIMO	Days>1.0 dv	30	13	0	17	30
			Max dv	2.189	1.252	0.186	0.937	2.003
			Days > 0.5 dv	30	10	0	20	30
			Days>1.0 dv	6	2	0	4	6
Coletto Creek	Source (Unit 1)	WIMO	Max dv	0.845	0.526	0.176	0.318	0.668
			Days > 0.5 dv	9	1	0	8	9
			Days>1.0 dv	0	0	0	0	0
		CACR	Max dv	0.791	0.458	0.186	0.333	0.606
			Days > 0.5 dv	5	0	0	5	5
			Days>1.0 dv	0	0	0	0	0
Harrington <sup>1</sup>	Source (Unit 061B & 062B)	SACR	Max dv	5.288	4.287	3.235	1.001	2.053
			Days > 0.5 dv	13	7	3	6	10
			Days>1.0 dv	5	1	1	4	4
		WIMO	Max dv	4.928	4.362	3.798	0.565	1.130
			Days > 0.5 dv	15	11	6	4	9
			Days>1.0 dv	6	5	4	1	2
	Unit 061B	SACR	Max dv	2.908	2.322	1.738	0.586	1.170
			Days > 0.5 dv	5	1	1	4	4
			Days>1.0 dv	1	1	1	0	0
		WIMO	Max dv	2.708	2.382	2.065	0.326	0.643
			Days > 0.5 dv	6	5	4	1	2
			Days>1.0 dv	4	2	1	2	3
	Unit 062B	SACR	Max dv	2.998	2.373	1.719	0.625	1.279
			Days > 0.5 dv	5	1	1	4	4
			Days>1.0 dv	1	1	1	0	0
		WIMO	Max dv	2.770	2.407	2.046	0.363	0.723
			Days > 0.5 dv	6	5	4	1	2
			Days>1.0 dv	4	1	1	3	3
J T Deely	Source (Sommers 1&2, J T Deely 1&2)	WIMO	Max dv	1.513	0.939	0.814	0.574	0.699
			Days > 0.5 dv	47	8	1	39	46
			Days>1.0 dv	6	0	0	6	6
		CACR	Max dv	1.423	1.155	0.905	0.268	0.518
			Days > 0.5 dv	7	3	2	4	5
			Days>1.0 dv	2	1	0	1	2
	J T Deely 1	WIMO	Max dv	0.757	0.449	0.270	0.307	0.487
			Days > 0.5 dv	4	0	0	4	4
			Days>1.0 dv	0	0	0	0	0
		BIBE	Max dv	0.652	0.373	0.069	0.279	0.583
			Days > 0.5 dv	2	0	0	2	2
			Days>1.0 dv	0	0	0	0	0



	J T Deely 2	WIMO	Max dv	0.632	0.387	0.334	0.245	0.298
			Days > 0.5 dv	3	0	0	3	3
			Days>1.0 dv	0	0	0	0	0
		CACR	Max dv	0.604	0.490	0.387	0.114	0.217
			Days > 0.5 dv	2	0	0	2	2
			Days>1.0 dv	0	0	0	0	0
W.A. Parish	Source (WAP 4,5, &6)	CACR	Max dv	3.177	2.032	0.511	1.145	2.665
			Days > 0.5 dv	54	26	1	28	53
			Days>1.0 dv	22	9	0	13	22
		UPBU	Max dv	1.994	1.215	0.234	0.779	1.760
			Days > 0.5 dv	34	14	0	20	34
			Days>1.0 dv	9	1	0	8	9
	WAP 5	CACR	Max dv	1.698	1.052	0.180	0.646	1.518
			Days > 0.5 dv	22	9	0	13	22
			Days>1.0 dv	8	1	0	7	8
		UPBU	Max dv	1.038	0.613	0.094	0.424	0.943
			Days > 0.5 dv	11	1	0	10	11
			Days>1.0 dv	1	0	0	1	1
	WAP 6	CACR	Max dv	1.648	1.018	0.156	0.630	1.492
			Days > 0.5 dv	22	8	0	14	22
			Days>1.0 dv	6	1	0	5	6
		UPBU	Max dv	1.003	0.591	0.081	0.412	0.922
			Days > 0.5 dv	9	1	0	8	9
			Days>1.0 dv	1	0	0	1	1
Welsh <sup>2</sup>	Source (Unit 1 & 2)	CACR	Max dv	4.576		0.822		3.754
			Days > 0.5 dv	92		3		89
			Days>1.0 dv	39		0		39
		MING	Max dv	2.544		0.570		1.973
			Days > 0.5 dv	9		1		8
			Days>1.0 dv	3		0		3
	Unit 1	CACR	Max dv	2.343	1.659	0.822	0.684	1.521
			Days > 0.5 dv	37	18	3	19	34
			Days>1.0 dv	8	3	0	5	8
		MING	Max dv	1.150	0.886	0.570	0.264	0.579
			Days > 0.5 dv	2	1	1	1	1
			Days>1.0 dv	1	0	0	1	1
Fayette <sup>2</sup>	Source (Unit 1 & 2)	CACR	Max dv	1.894		0.903		0.991
			Days > 0.5 dv	26		2		24
			Days>1.0 dv	9		0		9
		WIMO	Max dv	1.175		0.580		0.595
			Days > 0.5 dv	19		1		18
			Days>1.0 dv	2		0		2
	Unit 1	CACR	Max dv	1.002		0.480		0.522

			Days > 0.5 dv	9		0		9
			Days>1.0 dv	1		0		1
			Max dv	0.609		0.306		0.302
		WIMO	Days > 0.5 dv	2		0		2
			Days>1.0 dv	0		0		0
			Max dv	0.974		0.441		0.534
	Unit 2	CACR	Days > 0.5 dv	9		0		9
			Days>1.0 dv	0		0		0
			Max dv	0.598		0.282		0.316
		WIMO	Days > 0.5 dv	2		0		2
			Days>1.0 dv	0		0		0
			Max dv	0.598		0.282		0.316

<sup>1</sup> Harrington high control scenario for both units is SDA at 95% reduction

<sup>2</sup> Welsh Unit 2 and Fayette Units 1 & 2 were not modeled at DSI level control. Welsh Unit 2 has shut down and Fayette units have WFGD (wet FGD) installed. Welsh source-wide modeling for high control includes a unit 2 shutdown.

Table 16: Visibility Benefit of Retrofit Controls: Coal-Fired Units (CALPUFF modeling)

Facility Name	Emission Unit	Class I area	Metric	Visibility impact			Visibility Benefit	
				Baseline	DSI (50%)	WFGD (98%)	DSI benefit	WFGD benefit
Big Brown	Source (Units 1 and 2)	WIMO	Max dv	4.27	2.54	0.43	1.73	3.83
			Days > 0.5 dv Avg.	67.33	43.33	2.67	24.00	64.67
			Days>1.0 dv Avg.	42.00	21.00	1.00	20.00	33.00
		CACR	Max dv	4.03	2.41	0.47	1.62	3.55
			Days > 0.5 dv Avg.	91.00	62.00	4.00	29.00	87.00
			Days>1.0 dv Avg.	60.33	30.00	0.00	30.33	60.33
Monticello <sup>1</sup>	Source (Unit 1,2 and 3)	CACR	Max dv	6.57	2.41	1.70	2.89	4.87
			Days > 0.5 dv Avg.	143.67	115.00	62.33	28.67	81.33
			Days>1.0 dv Avg.	113.00	66.33	23.67	46.67	89.33
		UPBU <sup>4</sup>	Max dv	3.45	1.77	0.77	1.68	2.68

			Days > 0.5 dv Avg.	103.00	61.00	13.67	42.00	89.33
			Days>1.0 dv Avg.	39.33	16.67	2.67	22.67	36.67
		WIMO	Max dv	3.23	1.60	0.54	1.63	2.70
			Days > 0.5 dv Avg.	60.00	34.67	6.00	25.33	54.00
			Days>1.0 dv Avg.	39.33	16.67	0.67	22.67	38.67
Harrington <sup>2</sup>	Source (Units 061B & 062B)	SACR	Max dv	1.06	0.86	0.61	0.20	0.45
			Days > 0.5 dv Avg.	21.00	15.33	6.33	5.67	14.67
			Days>1.0 dv Avg.	6.67	3.00	0.67	3.67	6.00
		WIMO	Max dv	1.29	0.97	0.55	0.32	0.74
			Days > 0.5 dv Avg.	26.00	15.33	8.67	10.67	17.33
			Days>1.0 dv Avg.	9.00	4.67	1.33	4.33	7.67
Welsh <sup>3</sup>	Source (Unit 1)	CACR	Max dv	1.44	1.12	0.72	0.32	0.72
			Days > 0.5 dv Avg.	50.33	32.67	38.00	17.67	12.33
			Days>1.0 dv Avg.	15.33	8.00	2.33	7.33	13.00
		UPBU	Max dv	0.76	0.49	0.22	0.27	0.54
			Days > 0.5 dv Avg.	12.00	4.67	0.33	7.33	11.67
			Days>1.0 dv Avg.	0.67	0.00	0.00	0.67	0.67
		WIMO	Max dv	0.56	0.33	0.15	0.23	0.41
			Days > 0.5 dv Avg.	7.33	2.67	0.33	4.67	7.00
			Days>1.0 dv Avg.	1.33	0.33	0.00	1.00	1.33

<sup>1</sup> Monticello's controlled level is a combination of scrubber upgrades and scrubber install in the facility impact modeling with CALPUFF.

<sup>2</sup> Harrington high control scenario for both units is SDA at 95% reduction

<sup>3</sup> Welsh Unit 2 and Fayette Units 1 & 2 were not modeled at DSI level control. Welsh Unit 2 has shut down and

Fayette units have WFGD installed. Welsh source-wide modeling for high control includes a unit 2 shutdown.

<sup>4</sup> UPBU = Upper Buffalo Wilderness Area.

## b. Visibility Benefits of Scrubber Upgrades for Coal-Fired Units

We also modeled the visibility benefits of those same units for which we conducted control cost analysis for upgrading their existing scrubbers. We assumed the same 95% control level we used in our control cost analyses. We also modeled a lower level control at 90%. The visibility benefits from these scrubber upgrades are quantified specifically in our BART Modeling TSD. Below, we present a summary of the del-dv visibility benefits and reduction in number of days impacted.

Table 17: Visibility Benefit of Scrubber Upgrades: Coal-Fired Units (CAMx modeling)

Facility Name	Emission Unit	Class I area	Metric	Visibility impact			Visibility Benefit	
				Baseline	90% Control	95% Control	90% benefit	95% benefit
Martin Lake	Source (Unit 1, 2 & 3)	CACR	Max dv	6.651	4.491	4.321	2.159	2.329
			Days > 0.5 dv	141	75	56	66	85
			Days>1.0 dv	99	31	16	68	83
		UPBU	Max dv	5.803	2.669	2.528	3.134	3.275
			Days > 0.5 dv	99	39	22	60	77
			Days>1.0 dv	67	11	7	56	60
	Unit 1	CACR	Max dv	2.633	1.550	1.468	1.083	1.165
			Days > 0.5 dv	71	17	6	54	65
			Days>1.0 dv	26	3	1	23	25
		UPBU	Max dv	2.254	0.867	0.805	1.387	1.449
			Days > 0.5 dv	44	6	3	38	41

	Unit 2	CACR	Days>1.0 dv	10	0	0	10	10
			Max dv	2.466	1.882	1.811	0.585	0.655
			Days > 0.5 dv	68	18	9	50	59
		UPBU	Days>1.0 dv	26	3	1	23	25
			Max dv	2.189	1.077	1.025	1.112	1.164
			Days > 0.5 dv	40	6	5	34	35
			Days>1.0 dv	10	1	1	9	9
	Unit 3	CACR	Max dv	2.755	1.682	1.609	1.074	1.146
			Days > 0.5 dv	76	15	6	61	70
			Days>1.0 dv	29	2	1	27	28
		UPBU	Max dv	2.368	0.942	0.890	1.425	1.478
			Days > 0.5 dv	46	6	4	40	42
			Days>1.0 dv	13	0	0	13	13
Monticello	Source (Unit 1,2 and 3)	CACR	Max dv	10.498	6.121	2.079	4.377	8.419
			Days > 0.5 dv	152	107	28	45	124
			Days>1.0 dv	111	54	8	57	103
		WIMO	Max dv	5.736	2.769	0.774	2.968	4.962
			Days > 0.5 dv	67	35	4	32	63
			Days>1.0 dv	40	14	0	26	40
	Unit 3	CACR	Max dv	4.632	0.905	0.914	3.728	3.719
			Days > 0.5 dv	79	5	5	74	74
			Days>1.0 dv	32	0	0	32	32
		WIMO	Max dv	2.282	0.462	0.364	1.820	1.918
			Days > 0.5 dv	31	0	0	31	31
			Days>1.0 dv	7	0	0	7	7

Table 18: Visibility Benefit of Scrubber Upgrades: Coal-Fired Units (CALPUFF modeling)

			Metric	Visibility impact	Visibility Benefit
--	--	--	--------	-------------------	--------------------

Facility Name	Emission Unit	Class I area		Baseline	DSI (50%)	WFGD (98%)	DSI benefit	WFGD benefit
Martin Lake	Source (Units 1, 2 & 3)	CACR	Max dv	4.46	2.27	1.86	2.18	2.60
			Days > 0.5 dv Avg.	129.67	77.33	63.00	52.33	66.67
			Days>1.0 dv Avg.	91.33	32.67	22.33	58.67	69.00
		UPBU	Max dv	2.73	0.86	0.69	1.87	2.04
			Days > 0.5 dv Avg.	81.67	30.33	18.67	51.33	63.00
			Days>1.0 dv Avg.	46.67	7.33	3.67	39.33	43.00
Monticello <sup>1</sup>	Source (Unit 1, 2 and 3)	CACR	Max dv	0.70	0.00	1.50	1.80	WIMO1
			Days > 0.5 dv Avg.	90.00	17.67	68.00	72.33	22.00
			Days>1.0 dv Avg.	48.00	7.33	77.00	40.67	-29.00
		UPBU	Max dv	0.95	0.00	1.14	0.95	-0.20
			Days > 0.5 dv Avg.	24.00	7.33	77.00	16.67	-53.00
			Days>1.0 dv Avg.	3.00	1.00	55.00	2.00	-52.00
		WIMO	Max dv	0.21	0.15	0.77	0.06	-0.57
			Days > 0.5 dv Avg.	13.00	4.67	65.00	8.33	-52.00
			Days>1.0 dv Avg.	3.00	1.00	44.00	2.00	-41.00

<sup>1</sup> Monticello's controlled level is a combination of scrubber upgrade on Unit 3 and scrubber retrofits on Units 1 and 2 in the facility impact modeling with CALPUFF.

### c. Visibility Benefits of Fuel Oil Switching for Gas/Fuel Oil-Fired Units

We also modeled the visibility benefits of those gas/fuel oil-fired units for which we conducted control cost analysis for switching to lower sulfur fuels. We evaluated the visibility benefits of switching to fuel oils corresponding to ultra-low sulfur diesel at 0.0015% sulfur by weight and 0.3% sulfur by weight as we evaluated in our control cost analyses. The visibility

benefits from these fuel switches are quantified specifically in our BART Modeling TSD.

Below, we present a summary of the del-dv visibility benefits.

Table 19. Visibility Benefits from Lower Sulfur Fuel

Facility Name	Emission Unit	Baseline visibility Impact from Source (most impacted Class I area)	Visibility benefit of 0.3% S fuel oil	Visibility benefit of 0.0015% S fuel oil
Stryker	ST2	CALPUFF 0.7 % S: 0.786 dv @ CACR (Facility)	CALPUFF (0.3 % S) : 0.263 dv @ CACR (Facility)	CALPUFF: 0.522 dv @ CACR (Facility)
Graham	Unit 2	CALPUFF 0.7 % S: 1.228 dv @ WIMO (Facility)	CALPUFF (0.3% S): 0.465 dv @ WIMO (Facility)	CALPUFF: 0.851 dv @ WIMO (Facility)
Wilkes	Units 1, 2, 3	CALPUFF 0.43 % S: 0.698 dv @ CACR (Facility)	CALPUFF (0.1 % S): 0.029 dv @ CACR (Facility)	CALPUFF: 0.037 dv @ CACR (Facility)
Newman <sup>1</sup>	Unit 2	N/A	N/A	N/A
	Unit 3	N/A	N/A	N/A
	Unit 4	N/A	N/A	N/A
Calaveras	Sommers Unit 1	CAMx: 1.513 dv @ WIMO (Source); 0.106 dv @ CACR (Unit)	0.004 dv @ CACR	0.008 dv @ CACR
	Sommers Unit 2	CAMx: 1.513 dv @ WIMO (Source); 0.180 dv @ CACR (Unit)	0.023 @ CACR	0.047 @ CACR

<sup>1</sup> Newman is on the edge of the CALMET and CALPUFF modeling grids for the database that were used

in this action. Since the facility was near the edge, emissions of the facility's impacts could not be adequately modeled since some of the plumes could have gone out of the grid and not be adequately assessed if they come back into the grid and transport to impact a Class I area.

## 6. BART Analysis for PM

In our recent Texas-Oklahoma FIP, we initially proposed to approve Texas' determination that no PM BART controls were appropriate for its EGUs, based on a screening analysis of the visibility impacts from just PM emissions and the premise that EGU SO<sub>2</sub> and NO<sub>x</sub> were covered separately by participation in CSAPR (allowing consideration of PM emissions in isolation). Because of the CSAPR remand and resulting uncertainty regarding SO<sub>2</sub> and NO<sub>x</sub> BART for EGUs, we decided not to finalize our proposed approval of Texas' PM BART determination.<sup>104</sup> For reasons earlier stated we are proposing to disapprove the SIP determination regarding PM BART for EGUs. Following from that proposed disapproval, we are proposing a PM BART FIP for those Texas EGUs that are subject to BART.

The BART Guidelines permit us to conduct a streamlined analysis of PM BART in two key ways. First, the Guidelines allow a streamlined analysis for PM sources subject to MACT standards. Unless there are new technologies subsequent to the MACT standards which would lead to cost-effective increases in the level of control, the Guidelines state it is permissible to rely on MACT standards for purposes of BART.<sup>105</sup>

Second, with respect to gas-fired units, which have inherently low emissions of PM (as well as SO<sub>2</sub>), the Regional Haze Rule did not specifically envision new or additional controls or emissions reductions from the PM BART requirement. The BART guidelines preclude us from stating that PM emissions are *de minimis* when plant-wide emissions exceed 15 tons per years. While we must assign PM BART determinations to the gas-firing units, there are no practical add-on controls to consider for setting a more stringent PM BART emissions limit. The

---

<sup>104</sup> 81 FR 302 (January 5, 2016).

<sup>105</sup> 70 FR 39163-39164



Guidelines state that if the most stringent controls are made federally enforceable for BART, then the otherwise required analyses leading up to the BART determination can be skipped.<sup>106</sup>

With this background, we are providing our evaluation along with some supplementary information on the BART sources as divided into two categories: coal-fired EGUs, and gas-fired EGUs.

#### *BART Analysis for PM for Coal-Fired Units*

All of the coal-fired EGUs that are subject to BART are currently equipped with either Electrostatic Precipitators (ESPs) or baghouses, or both, as can be seen from Table 20:

Table 20: Current PM Controls for Coal-Fired Units Subject to BART

Facility Name	Unit ID	Fuel Type (Primary)	SO <sub>2</sub> Control(s)	PM Control(s)
Big Brown	1	Coal		Baghouse + Electrostatic Precipitator
Big Brown	2	Coal		Baghouse + Electrostatic Precipitator
Coleto Creek	1	Coal		Baghouse
Harrington Station	061B	Coal		Electrostatic Precipitator
Harrington Station	062B	Coal		Baghouse
J T Deely	1	Coal		Baghouse
J T Deely	2	Coal		Baghouse
Martin Lake	1	Coal	Wet Limestone	Electrostatic Precipitator
Martin Lake	2	Coal	Wet Limestone	Electrostatic Precipitator
Martin Lake	3	Coal	Wet Limestone	Electrostatic Precipitator
Monticello	1	Coal		Baghouse + Electrostatic Precipitator
Monticello	2	Coal		Baghouse + Electrostatic Precipitator
Monticello	3	Coal	Wet Limestone	Electrostatic Precipitator

---

<sup>106</sup> 70 FR 39165 (“...you may skip the remaining analyses in this section, including the visibility analysis...”)

Fayette	1	Coal	Wet Limestone	Electrostatic Precipitator
Fayette	2	Coal	Wet Limestone	Electrostatic Precipitator
W A Parish	WAP5	Coal		Baghouse
W A Parish	WAP6	Coal		Baghouse
Welsh Power Plant	1	Coal		Baghouse (Began Nov 15, 2015) + Electrostatic Precipitator

As an initial matter, we examine the control efficiencies of both baghouses and ESPs. We consider a baghouse, widely reported to be capable of 99.9% control of PM, to be the maximum level control for PM and so the units equipped with a baghouse will not be further analyzed for PM BART. The remaining units are fitted with ESPs.

The particulate matter control efficiency of ESPs varies somewhat with the design, the resistivity of the particulate matter, and the maintenance of the ESP. We do not have any information on the control level efficiency of any of the ESPs for the units in question. However, reported control efficiencies for well-maintained ESPs typically range from greater than 99% to 99.9%.<sup>107</sup> We consider this pertinent in concluding that the potential additional particulate control that a baghouse can offer over an ESP is relatively minimal.<sup>108</sup> In other words, if we did obtain control information specific to the ESP units in question, we do not believe that additional information would lead us to a different conclusion.

Nevertheless, we will examine the potential cost of retrofitting a typical 500 MW coal fired unit with a baghouse. Using our baghouse cost algorithms, as employed in version 5.13 of

---

<sup>107</sup> EPA, "Air Pollution Control Technology Fact Sheet: Dry Electrostatic Precipitator (ESP) - Wire Plate Type," EPA-452/F-03-028. Grieco, G., "Particulate Matter Control for Coal-fired Generating Units: Separating Perception from Fact," apcmag.net, February, 2012. Moretti, A. L.; Jones, C. S., "Advanced Emissions Control Technologies for Coal-Fired Power Plants, Babcox and Wilcox Technical Paper BR-1886, Presented at Power-Gen Asia, Bangkok, Thailand, October 3-5, 2012

<sup>108</sup> We do not discount the potential health benefits this additional control can have for ambient PM. However, the regional haze program is only concerned with improving the visibility at Class I areas.

our IPM model,<sup>109</sup> and assuming a conservative air to cloth ratio of 6.0, results in a capital engineering and construction cost of \$77,428,000.<sup>110</sup> Applied to the subject units, this cost assumes a retrofit factor of 1.0, and does not consider the demolition of the existing ESP, should it be required in order to make space for the baghouse.

We do not calculate the cost-effectiveness resulting from replacing an ESP with a baghouse. However, we expect that the tons of additional PM removed by a baghouse over an ESP to be very small, which would result in a very high cost-effectiveness figure. Also, we do not model the visibility benefit of replacing an ESP with a baghouse. However, our visibility impact modeling indicates that the baseline PM emissions of these units are very small, so we expect that the visibility improvement from replacing an ESP with a baghouse to be a small fraction of that. For instance, our CAMx baseline modeling shows that on a source-wide level, impacts from PM emissions on the maximum impacted days from each source at each Class I area was 3% of the total visibility impairment or less (calculated as percent of total extinction due to the source). Therefore additional PM controls are anticipated to result in very little visibility benefit on the maximum impacted days. Similarly, our CALPUFF modeling indicates that visibility impairment from PM is also a small fraction (typically only a few percent) of the total visibility impairment due to each source.

Adding to the above discussion, we are tasked to assign the enforceable emission limitations that constitute PM BART. We believe a stringent control level that would be met

---

<sup>109</sup> IPM Model – Updates to Cost and Performance for APC Technologies, Particulate Control Cost Development Methodology, Final March 2013, Project 12847-002, Systems Research and Applications Corporation, Prepared by Sargent & Lundy. Documentation for v.5.13: Chapter 5: Emission Control Technologies, Attachment 5-7: PM Cost Methodology, downloaded from: [https://www.epa.gov/sites/production/files/2015-08/documents/attachment\\_5-7\\_pm\\_cost\\_methodology.pdf](https://www.epa.gov/sites/production/files/2015-08/documents/attachment_5-7_pm_cost_methodology.pdf)

<sup>110</sup> Id. See page 9.

with existing or otherwise-required controls is a filterable PM limit of 0.03 lb/MMBtu for each of the coal-fired units subject to BART. We note that the Mercury and Air Toxics (MATS) Rule establishes an emission standard of 0.03 lb/MMBtu filterable PM (as a surrogate for toxic non-mercury metals) as representing Maximum Achievable Control Technology (MACT) for coal-fired EGUs.<sup>111</sup> This standard derives from the average emission limitation achieved by the best performing 12 percent of existing coal-fired EGUs, as based upon test data used in developing the MATS Rule. We are not familiar with any new technologies subsequent to this standard that could lead to any cost effective increases in the level of control; thus, consistent with the BART Guidelines, we are proposing to rely on this limit for purposes of PM BART for all of the coal-fired units as part of our FIP. We understand the coal-fired units covered by this proposal to be subject to MATS, but to the extent the units may be following alternate limits that differ from the surrogate PM limits found in MATS, we welcome comments on different, appropriately stringent limits reflective of current control capabilities.<sup>112</sup> Because we anticipate that any limit we assign should be achieved by current control capabilities, we propose that compliance can be met at the effective date of the rule. To address periods of startups and shutdowns, we are further proposing that PM BART for these units will additionally be met by following the work practice standards specified in 40 CFR Part 63, subpart UUUUU, Table 3, and using the relevant definitions in 63.10042. We are proposing that the demonstration of compliance can be satisfied by the methods for demonstrating compliance with filterable PM limits that are specified in 40

---

<sup>111</sup> 77 FR 9304, 9450, 9458 (February 16, 2012) (codified at 40 CFR 60.42 Da(a), 60.50 Da(b)(1)); 40 CFR Part 63 Subpart UUUUU—National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units.

<sup>112</sup> The various limits are provided at 40 CFR Part 63, Subpart UUUUU, Table 2 (“Emission Limits for Existing EGUs”)

CFR Part 63, subpart UUUUU, Table 7. However, we would give consideration to commenter-submitted requests for alternate or additional methods of demonstrating compliance.

#### *BART Analysis for PM for Gas-Fired Units*

We note that PM emissions for the gas-only fired units that are subject to BART are inherently low.<sup>113</sup> We therefore conclude that PM emissions from natural gas firing is so minimal that the installation of any additional PM controls on the unit would likely achieve very low emissions reductions and have minimal visibility benefits. As there are no appropriate add-on controls and the status quo reflects the most stringent controls, we are proposing to make the requirement to burn pipeline natural gas federally enforceable. We note that in addition to satisfying PM BART, this limitation will also serve to satisfy SO<sub>2</sub> BART for these gas-fired units, as well as the fuel-oil units when they fire natural gas. We are proposing that PM and SO<sub>2</sub> BART for gas fired-units will limit fuel to pipeline natural gas, as defined at 40 CFR 72.2.

The available PM controls for gas units that also burn fuel oil are the same for the coal-fired units. We would expect similar costs for installing a baghouse on a typical gas-fired boiler that occasionally burns fuel oil. Again, our visibility impact modeling indicates that the baseline PM emissions of these units are very small, so we expect that the visibility improvement from the installation of a baghouse to be a small fraction on the order of 1-3 % of the visibility impacts from the facility. We are confident that the cost of retrofitting the subject units with a baghouse would be extremely high compared to the visibility benefit for any of the units currently fitted with an ESP. We conclude that the cost of a baghouse does not justify the minimal expected

---

<sup>113</sup> AP 42, Fifth Edition, Volume 1, Chapter 1: External Sources, Section 1.4, Natural Gas Combustion, available here: <https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf>.

improvement in visibility for these units. Accordingly, we are proposing that the fuel content limits for oil burning that we propose to meet SO<sub>2</sub> BART will also satisfy PM BART.

Lastly, should our assumptions regarding the frequency and type of fuel oil burned in these units significantly change, we expect that Texas will address such a change appropriately in its SIP, which we will review in the next planning period.

#### **D. How, If At All, Do Issues of “Grid Reliability” Relate to the Proposed BART Determinations?**

On July 15, 2016, a preliminary order of the Fifth Circuit Court of Appeals took the view that EPA’s Texas-Oklahoma FIP (81 FR 295, January 5, 2016) gave a “truncated discussion of grid reliability” and additionally stated that “the agency may not have fulfilled its statutory obligation to consider the energy impacts of the FIP.” The Court’s preliminary ruling made particular reference to “the explicit directive in the [CAA] that implementation plans ‘take[] into consideration...the energy...impacts of compliance,’ 42 U.S.C. § 7491(g)(1).”<sup>114</sup> Because the BART requirement at issue in this proposal has similar language on *energy impacts of compliance* appearing at 42 U.S.C. § 7491(g)(2), we wish to provide a clear explanation on how grid-related considerations for EGUs could bear on this proposal.

First, the BART factor for *energy impacts of compliance* does not call for the examination of grid reliability considerations from alleged plans to shut down or retire a unit rather than comply with a more stringent emission limit or limits. The language instead calls for

---

<sup>114</sup>EPA Guidance on this statutory language specifically explains that energy impacts are a matter of whether “energy requirements associated with a control technology result in energy penalties.” U.S. EPA, Office of Air Quality Planning and Standards, “Guidance for Setting Reasonable Progress Goals under the Regional Haze Program,” (June 1, 2007 rev), at Page 5-2.

consideration of energy impacts from *complying* by installing retrofit controls on a source that continues in operation. In this regard, our proposal follows the required BART Guidelines for EGUs.<sup>115</sup> The Guidelines explain that the energy impacts factor relates to the penalties and benefits that may be associated with the assessment of a control option, e.g., whether (for power penalties) the operation of add-on control technology subtracts from the productive yield of electricity from an EGU (what is sometimes termed an auxiliary or parasitic load).<sup>116</sup> It is also useful to note that the statutory text, while using the word “energy,” can apply to sources that do not produce energy or electricity. Thus, the statutory text regarding “energy impacts” of compliance with BART is not confined to the power generating industry and does not dictate that we study grid reliability issues.

We have considered whether this topic has any separate relevance to our proposal. Various court filings, news accounts, and industry market reports suggest that some source operators for some Texas BART units may be contemplating unit retirements. The BART Guidelines directly address such scenarios under the “remaining useful life” factor: “there may be situations where a source operator intends to shut down a source...but wishes to retain the flexibility to continue operating beyond that date in the event, for example, the market conditions change.”<sup>117</sup> The Guidelines advise that a source that is willing to assure a permanent stop in operations with a federally- or State-enforceable restriction preventing further operation may

---

<sup>115</sup> The promulgation of the Guidelines was required by 42 U.S.C. 7491(b)(1). Adherence to the Guidelines is mandatory for fossil-fuel fired generating power plants having total generating capacities “in excess of 750 megawatts.”

<sup>116</sup> Other CAA provisions requiring consideration of “energy impacts” or “energy requirements of the control technology” are understood similarly. *See, e.g.*, CAA section 169 (the 1977 “best available control technology” requirement with consideration of “energy...impacts”); *see also* CAA section 108 (“energy requirements...of the emission control technology; “energy...impact of such processes, procedures, and methods [to reduce or control air pollution]”); section 111 (“taking into account...energy requirements” of an emission limitation), etc.

<sup>117</sup> *Id.* at 39169-39170.

obtain a short remaining useful life for BART analysis purposes that could then factor in the overall cost analysis.<sup>118</sup> As the Guidelines state, “Where the remaining useful life is less than the time period for amortizing costs, you should use this shorter period in your cost calculations.”<sup>119</sup> We have no information on enforceable restrictions of this type for any of the units that we propose to be subject to BART. Absent that, we must assume that controls installed on the BART units will experience their full useful life. Affected sources are free to submit information as part of their comments containing appropriate enforceable documentation of shorter remaining useful lives.

We note, however, that the Guidelines recognize there may be cases where the installation of controls, even when cost-effective, would “affect the viability of continued plant operations.”<sup>120</sup> Under the Guidelines, where there are “unusual circumstances,” we are permitted to take into consideration “the conditions of the plant and the economic effects of requiring the use of a control technology.”<sup>121</sup> If the effects are judged to have a “severe impact,” those effects can be considered in the selection process. In such cases, the Guidelines counsel that any determinations be made with an economic analysis with sufficient detail for public review on the “specific economic effects, parameters, and reasoning.”<sup>122</sup> It is recognized, by the language of the Guidelines, that any such review process may entail the use of sensitive business information that may be confidential. The ADDRESSES section of this proposal explains how to submit confidential information with comments, and when claims of confidential business information,

---

<sup>118</sup> Similar to calculating a mortgage, remaining useful life is used in our cost-effectiveness analysis to calculate the annual cost of a particular control. The longer the remaining useful life, the smaller the total annualized cost, and the more cost-effective the control.

<sup>119</sup> *Id.* at 39169.

<sup>120</sup> 70 FR 39103, 39171 (July 6, 2005), [40 CFR Part 51, App. Y]

<sup>121</sup> *Id.*

<sup>122</sup> 70 FR at 39171



or CBI, are asserted with respect to any information that is submitted, the EPA regulations at 40 CFR Part 2, Subpart B-Confidentiality Business Information apply to protect it. All of that said, the Guidelines also advise that we may “consider whether other competing plants in the same industry have been required to install BART controls if this information is available.”<sup>123</sup> Because Texas EGUs are among the last to have SO<sub>2</sub> BART determinations, this information is available. It is indeed the case that other similar EGUs have been required to install the same types of SO<sub>2</sub> BART controls that we are proposing as very cost effective.<sup>124</sup>

We have considered the state of available information on whether the proposed controls could affect the viability of continued plant operations. On this point, we note that we are proposing BART determinations for several units where SO<sub>2</sub> control requirements were separately promulgated as part of the Texas-Oklahoma FIP. These under-controlled EGU sources are: Big Brown 1 and 2; Monticello 1, 2 and 3; Martin Lake 1,2 and 3; and Coletto Creek 1. In litigation over the reasonable progress FIP, various declarations were filed on the issues of alleged forced closures and alleged reliability impacts. These declarations have been compiled and added to the docket for this rulemaking. By our review, these declarations do not appropriately inform or substantiate source-specific allegations of “unusual circumstances” that may have a severe impact on plant operations, because they do not offer any site-specific information.<sup>125</sup> Thus, we are unable to conclude that the proposed cost-effective BART controls would severely impact plant operations. Generalized claims of possible retirements and

---

<sup>123</sup> *Id.*

<sup>124</sup> See for instance, the EIA information we present elsewhere in this notice in which we summarize the hundreds of scrubber installations that have been performed on similar EGUs.

<sup>125</sup> Certain statements in declarations from representatives of both Luminant and Coletto Creek, who are the source owners of these facilities, cited compliance planning efforts that would be consistent with continued plant operations.

discussions on attributes of the market design of the Electric Reliability Council of Texas (ERCOT) cannot inform the statutorily required, source-specific BART determinations.

As a predicate to studying effects on transmission or reliability as “unusual circumstances,” we would require site-specific information from any source that would wish for us to potentially consider “affordability of controls,” under the terms specified in the Guidelines. Source owners may submit information, including information claimed to be CBI, for our assessment and consideration to potentially support an economic analysis that might be used in the BART selection process. As suggested by the Guidelines, the information necessary to inform our judgment would likely entail source-specific information on “product prices, the market share, and the profitability of the source.” Consideration of such information does not dictate what will be selected as a “best” alternative under the Guidelines, but it will substantiate the likelihood of a retirement scenario that would then give the parameters for: a non-conjectural examination of grid reliability issues; judging the significance or insignificance of such issues; and assessing whether such issues could be avoided through appropriate transmission planning. In sum, unless we are able to substantiate an “affordability of controls” problem for any particular unit and substantiate that a particular unit retirement would not be happening anyway at about the same time, alleged grid reliability impacts are speculative and are not able to inform these required BART determinations. As a final note, we acknowledge Executive Order 13211 (“Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, and Use”). In cases where it does apply, agencies are ordered to prepare a Statement of Energy Effects for submission to the Administrator of the Office of Information and Regulatory Affairs (OIRA), Office of Management and Budget. This EGU BART proposal is not considered a significant regulatory action under Executive Order 12866, so the proposed action cannot be a

“significant energy action” for purposes of Executive Order 13211 on that basis. This proposed action has also not been designated a significant energy action by the Administrator of OIRA, so Executive Order 13211 could not apply under that separate basis. With this proposal, there are no anticipated adverse effects on energy supply, distribution, or use that are meaningful or distinguishable from any other scenario where an EGU is expected to install cost-effective pollution controls required by the CAA.

#### **IV. Our Weighing of the Five BART Factors**

Below we present our reasoning for proposing our BART determinations for 29 EGUs in Texas, based on our analysis and weighing of the Five BART Factors. (1) proposed SO<sub>2</sub> and PM BART determinations for 12 coal-fired units with no SO<sub>2</sub> controls, (2) proposed BART SO<sub>2</sub> and PM BART determinations for 6 coal-fired units with existing scrubbers, (3) proposed SO<sub>2</sub> and PM BART determinations 7 gas-fired units that occasionally burn fuel oil, and (4) proposed PM BART determinations for 4 gas-fired units.

In previous sections of this proposal, we have described how we assessed the five BART factors. In no case do we see any instance in which our assessment of energy impacts is a determining factor in assessing BART.<sup>126</sup> Also, in no case do we see any instance in which our assessment of the remaining useful life is a determining factor in assessing BART. Should a facility indicate in comments to us that the remaining useful life is less than the 30 years we have assumed in our control cost analyses, and is willing to enter into an enforceable document to that effect, we will adjust our cost-effectiveness calculation accordingly in making our final decision.

---

<sup>126</sup> In addition to our assessment of energy impacts, also see our discussion in Section III.D concerning our conclusion that energy impact considerations do not relate to potential electrical grid reliability issues.

In two cases, Harrington units 061B and 062B, we have limited our SO<sub>2</sub> control analysis for Harrington to DSI and dry scrubbers due to potential non-air quality concerns. In all other instances, we conclude that the cost of compliance, and the visibility benefits of controls are the controlling BART factors in our weighing of the five BART factors.

In considering cost-effectiveness and visibility benefit, we do not eliminate any controls based solely on the magnitude of the cost-effectiveness value, nor do we use cost-effectiveness as the primary determining factor. Rather, we compare the cost-effectiveness to the anticipated visibility benefit, and we take note of any additional considerations.<sup>127</sup> Also, in judging the visibility benefit we do not simply examine the highest value for a given Class I area, or a group of Class I areas, but we also consider the cumulative visibility benefit for all affected Class I areas, the number of days in a calendar year in which we see significant improvements, and other factors.<sup>128</sup>

First, we note that all of the sources addressed in our proposed BART determinations have already been shown to cause or contribute to visibility impairment at a Class I area as a condition of being subject-to-BART as part of the BART screening analysis. This analysis eliminated any BART-eligible source that emits lower amounts of visibility impacting pollutants, or otherwise impacts any Class I area at less than 0.5 deciviews. In fact, all of the individual units that we are proposing for BART controls exceed 0.5 deciviews on a unit basis, with most exceeding 1.0 deciview impact on a unit basis. As a consequence, all of the units we are proposing for BART controls are among the largest emitters of visibility impacting pollutants in

---

<sup>127</sup> For instance, as we discuss later in Section IV.C why we believe that there are certain mitigating factors that should be considered when assessing BART for the gas-fired units that occasionally burn fuel oil.

<sup>128</sup> See for example 70 39130: “comparison thresholds can be used in a number of ways in evaluating visibility improvement (e.g. the number of days or hours that the threshold was exceeded, a single threshold for determining whether a change in impacts is significant, a threshold representing an x percent change in improvement, etc.).”

Texas. A number of these units (i.e., Big Brown, Martin Lake, Monticello, and Coletto Creek) were previously determined by us to require the same type and level of controls under the reasonable progress and long-term strategy provisions of the Regional Haze Rule that we are proposing here.<sup>129</sup>

Second, not discounting our approach of considering both cost-effectiveness and visibility benefit in unison, the cost-effectiveness of all of the controls that form the basis of our proposed BART determinations are within a range found to be acceptable in other cases.<sup>130</sup> As we stated in the BART Rule, “[a] reasonable range would be a range that is consistent with the range of cost effectiveness values used in other similar permit decisions over a period of time.”<sup>131</sup>

#### **A. SO<sub>2</sub> BART for Coal-fired Units with no SO<sub>2</sub> Controls**

As we have discussed in this proposal and in our TSD, we have assumed two DSI control levels corresponding to 50% control and either a maximum of 80% or 90% control, depending on the particulate matter control device in use.<sup>132</sup> We did this to address the BART Guidelines directive that in evaluating technically feasible alternatives we “(1) [ensure we] express the degree of control using a metric that ensures an “apples to apples” comparison of emissions performance levels among options, and (2) [give] appropriate treatment and consideration of control techniques that can operate over a wide range of emission performance levels.”<sup>133</sup> In

---

<sup>129</sup> See our recent Texas-Oklahoma FIP, 81 FR 321.

<sup>130</sup> See for instance 79 FR 5048 (January 30, 2014): Jim Bridger BART determination of LNB/SOFA + SCR on Units 1-4; 77 FR 18070 (March 26, 2012): EPA proposed approval of Colorado’s BART determination of SCR for Hayden Unit 2, later finalized at 77 FR 76871 (December 31, 2012).

<sup>131</sup> 70 FR 39168 (July 6, 2005).

<sup>132</sup> Note for Harrington Unit 062B and Welsh 1, we further limited the maximum DSI control level to that of our calculated SDA control level.

<sup>133</sup> 70 FR 39166 (July 6, 2005).

most cases, the cost-effectiveness of the higher control level of DSI was higher than either SDA or wet FGD. This was not the case for Monticello Unit 2; Harrington Unit 062B; and J T Deely Units 1 and 2.

However, these maximum DSI control levels are theoretical and we believe that any DSI control level above 50% must be confirmed by onsite testing before we could propose a BART control based on it. As is evident in comparing the 50% control level to the higher control level, the cost-effectiveness of DSI worsens (higher \$/ton) as the control level increases, and the certainty of any unit attaining that control level decreases. We therefore regard the cost-effectiveness values of the maximum DSI control levels as being useful in a basic comparison of cost-effectiveness between DSI and scrubbers, but we place much less weight on these values. We therefore conclude that given the uncertainty concerning the maximum control level of DSI, the greater control efficiency and resulting visibility benefit offered by scrubbers overrides any possible advantage DSI may hold in cost-effectiveness. Should the affected facilities provide site-specific information to us in their comments that conflicts with this assumption, we will incorporate it into our final decision on SO<sub>2</sub> BART and potentially re-evaluate DSI.

As we indicate elsewhere in our proposal, both SDA and wet FGD are mature technologies that are in wide use throughout the United States. We are not aware of any unusual circumstances that exist for any of the sources that would serve to indicate they should not be viewed similarly to these hundreds of previous scrubber retrofits. In comparing wet FGD versus SDA we note that in a number of cases the cost-effectiveness of wet FGD is lower than the cost-effectiveness of SDA. In the remaining cases, we conclude that the incremental cost-effectiveness of wet FGD over SDA, which we review in Section III.C.3.a is reasonable, and the improved control and visibility benefit offered by wet FGD overrides the small penalty in cost-

effectiveness FGD has in comparison to SDA. We propose that with the exception of the Harrington units, SO<sub>2</sub> BART for all other coal-fired units should be based on the wet FGD control levels we have used in our BART analyses. We propose that SO<sub>2</sub> BART for the Harrington units should be based on the SDA control levels we have used in our BART analyses. Below we discuss our consideration of the cost-effectiveness and anticipated visibility benefits of controls. See section III.C.5 for additional information on the anticipated visibility benefits from each level of control modeled. See the BART Modeling TSD for a complete summary of our visibility benefit analysis of controls, including modeled benefits and impacts at all Class I areas included in the modeling analyses and additional metrics considered in the assessment of visibility benefits.

CAMx model results shown in the tables below summarize the benefits from the recommended controls at the two Class I areas most impacted by the source or unit in the baseline modeling. The benefit is calculated as the difference between the maximum impact modeled for the baseline and the maximum impact level modeled under the control scenario. Also summarized are the cumulative benefit and the number of days impacted over 0.5 and 1.0 dv. Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario summed across the 15 Class I areas included in the CAMx modeling. The baseline total cumulative number of days over 0.5 (1.0) dv is calculated as the sum of the number of modeled days at each of the 15 Class I area impacted over the threshold in the baseline modeling. The reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the 15 Class I areas included in the CAMx modeling for the baseline scenario subtracted by the number of days over the threshold for the control scenario. The CALPUFF cumulative model results only consider those Class I areas within the

typical range of CALPUFF and not all 15 Class I areas included in the CAMx modeling.

### 1. Big Brown 1 & 2

In reviewing the Big Brown units, we conclude that the installation of wet FGD will result in very significant visibility benefits. We summarize some of these visibility benefits in the tables below:

Table 21. Wet FGD Visibility Benefits at Big Brown (CALPUFF)

Source	Improvement at Wichita Mountains (dv)	Improvement at Caney Creek (dv)	Total Cumulative Visibility Benefit (dv) <sup>1</sup>	Cumulative Reduction in number of days above 0.5 dv <sup>2</sup>	Cumulative Reduction in number of days above 1.0 dv <sup>2</sup>
Big Brown Units 1 & 2	3.83	3.55	7.38	151.67	93.33

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario runs summed across the following Class I areas: Caney Creek and Wichita Mountains

<sup>2</sup> Using the three years (2001-2003) of CALPUFF modeling results an annual average of the number of days reduced was calculated. The Reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the following Class I areas for the baseline scenario subtracted by the number of days over the threshold for the control scenario: Caney Creek and Wichita Mountains.

In evaluating Big Brown, we note there are two Class I areas within the typical range that CALPUFF has been used for assessing visibility impacts. Using the three years of 2001-2003 CALPUFF modeling results, we assessed the annual average number of days when the facility impacts were greater than 0.5 del-dv at each of the Class I areas and then summed this value for



each of the Class I areas to yield an annual average cumulative value for total number of days impacts were above 0.5 del-dv at all Class I areas within typical CALPUFF range. The reduction in the number of days (annual average) was calculated as the cumulative value of the number of days over the 0.5 del-dv threshold across the Class I areas for the baseline scenario subtracted by the cumulative number of days over the threshold for the control scenario. For the two Class I areas that are within the range that CALPUFF is typically used, the 2001-2003 CALPUFF modeling results indicate that wet FGD on both units will eliminate 151.6 days annually (3 year average) when the facility has impacts greater than 0.5 delta deciview. The same analysis was also calculated using a 1.0 del-dv threshold and is reported in the table above. DSI operated at 50% control results in approximately half of the visibility benefits in terms of dv benefits at the most impacted Class I areas and about 1/3<sup>rd</sup> to half the cumulative benefits over the class I areas included in the modeling analysis.

Table 22. Wet FGD Visibility Benefits at Big Brown (CAMx)

<b>Unit</b>	<b>Improvement at Wichita mountains (dv)</b>	<b>Improvement at Caney Creek (dv)</b>	<b>Total Cumulative Visibility Benefit (dv)<sup>1</sup></b>	<b>Baseline Total Cumulative number of days over 0.5/1.0 dv<sup>2</sup></b>	<b>Reduction in number of days above 0.5/1.0 dv<sup>3</sup></b>
Big Brown 1	1.909	1.606	12.728	174 / 44	174 / 44
Big Brown 2	1.940	1.642	12.924	175 / 45	175 / 45
Source	3.542	2.988	24.274	372 / 170	362 / 170

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario runs summed across 15 Class I areas included in the CAMx modeling.

<sup>2</sup> Baseline Total Cumulative number of days over 0.5 (1.0) dv is calculated as the sum of the number of modeled days at each of the 15 Class I area impacted over the threshold.

<sup>3</sup> Reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the 15 Class I areas included in the CAMx modeling for the baseline scenario subtracted by the number of days over the threshold for the control scenario.

CAMx modeling results indicate that wet FGD will eliminate all days impacted over 1dv at all Class I areas on a unit and source-wide basis, and eliminate all but 10 days across the impacted Class I areas where the source-wide impacts exceeds 0.5 dv. At the most impacted Class I area, wet FGD will on each unit result in visibility improvements of 1.9 dv on the most impacted day. DSI operated at 50% control results in approximately half of the wet FGD visibility benefits at the most impacted Class I areas and half of the cumulative benefits over the 15 class I areas included in the CAMx modeling.

We also conclude that wet FGD is very cost-effective for both units at less than \$1,200/ton and more cost-effective than DSI. Based on this consideration of the BART factors, we propose that SO<sub>2</sub> BART for Big Brown Units 1 and 2 should be based on the installation of wet FGD at an emission limit of 0.04 lbs/MMBtu based on a 30 BOD.

## **2. Monticello 1 & 2**

Similar to the Big Brown units, the installation of wet FGD at Monticello Units 1 and 2 will result in very significant visibility benefits. We summarize some of these visibility benefits in the tables below:

Table 23. Wet FGD Visibility Benefits at Monticello (CALPUFF)

<b>Source</b>	<b>Improvement at Caney Creek (dv)</b>	<b>Improvement at Wichita Mountains (dv)</b>	<b>Total Cumulative Visibility Benefit (dv)<sup>1</sup></b>	<b>Baseline Total Cumulative number of days over 0.5/1.0 dv<sup>2</sup></b>	<b>Cumulative Reduction in number of days above 1.0 dv<sup>2</sup></b>
Monticello Units 1, 2 & 3	4.87	2.70	10.25	224.67	164.67

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario runs summed across the following Class I areas: Caney Creek, Wichita Mountains, and Upper Buffalo.

<sup>2</sup> Using the three years (2001-2003) of CALPUFF modeling results an annual average of the number of days reduced was calculated. The Reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the following Class I areas for the baseline scenario subtracted by the number of days over the threshold for the control scenario: Caney Creek, Wichita Mountains, and Upper Buffalo.

In evaluating Monticello, we note there are three Class I areas within the typical range that CALPUFF has been used for assessing visibility impacts. Using the three years of 2001-2003 CALPUFF modeling results we assessed the annual average number of days when the facility impacts were greater than 0.5 del-dv at each of the Class I areas and then summed this value for each of the Class I areas to yield an annual average cumulative value for total number of days impacts were above 0.5 del-dv at all Class I areas within typical CALPUFF range. The reduction in the number of days (annual average) was calculated as the cumulative value of the number of days over the 0.5 del-dv threshold across the Class I areas for the baseline scenario subtracted by the cumulative number of days over the threshold for the control scenario. For the three Class I areas that are within the range that CALPUFF is typically used, the 2001-2003

CALPUFF modeling results indicate wet FGD on both units will eliminate 224.6 days annually (3 year average) when the facility has impacts greater than 0.5 delta deciview. The same analysis was also calculated using a 1.0 del-dv threshold and is reported in the table above. DSI operated at 50% control results in approximately half of the wet FGD visibility benefits at the most impacted Class I area and half of the cumulative benefits.

Table 24. Wet FGD Visibility Benefits at Monticello (CAMx)

<b>Unit</b>	<b>Improvement at Caney Creek (dv)</b>	<b>Improvement at Wichita Mountains (dv)</b>	<b>Total Cumulative Visibility Benefit (dv) <sup>1</sup></b>	<b>Baseline Total Cumulative number of days over 0.5/1.0 dv<sup>2</sup></b>	<b>Reduction in number of days above 0.5/1.0 dv<sup>3</sup></b>
Monticello 1	3.783	1.989	12.708	197 / 67	191 / 67
Monticello 2	3.924	2.003	13.025	192 / 57	191 / 57
Source (including unit 3)	8.419	4.962	31.553	520 / 293	460 / 278

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario runs summed across 15 Class I areas included in the CAMx modeling.

<sup>2</sup> Baseline Total Cumulative number of days over 0.5 (1.0) dv is calculated as the sum of the number of modeled days at each of the 15 Class I area impacted over the threshold.

<sup>3</sup> Reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the 15 Class I areas included in the CAMx modeling for the baseline scenario subtracted by the number of days over the threshold for the control scenario.

CAMx modeling results indicate that wet FGD will eliminate all days impacted over 1dv at all Class I areas on a unit basis, and eliminate all but 15 days across the impacted Class I areas

where the source-wide impacts exceeds 1 dv. We note that source-wide modeled benefits include benefits of 95% control scrubber upgrade on Unit 3. At the most impacted Class I area, wet FGD on each unit will each result in visibility improvements of 3.8-3.9 dv on the most impacted day at Caney Creek and 2 dv visibility benefits at Wichita Mountains. DSI operated at 50% control results in less than half of the wet FGD visibility benefits at the most impacted Class I areas and half of the cumulative benefits over the 15 class I areas included in the modeling.

The wet FGD cost-effectiveness of \$2,718/ton and \$3,031/ton are higher than those for Big Brown, but these figures remain well within a range that we have previously found to be acceptable for BART, and we consider the very significant visibility benefits that will result justify the cost of wet FGD at the Monticello Units 1 and 2. The 50% control DSI cost-effectiveness is slightly less than that for wet-FGD, but results in much less visibility benefits. Based on our consideration of the BART factors, we therefore propose that SO<sub>2</sub> BART for Monticello Units 1 and 2 should be based on the installation of wet FGD at an emission limit of 0.04 lbs/MMBtu based on a 30 BOD.

### **3. Coletto Creek 1**

In reviewing Coletto Creek Unit 1, we conclude that in comparison with the Monticello units, the installation of a wet FGD is more cost-effective and results in lesser, but still significant visibility benefits. We summarize some of these visibility benefits in the table below:

Table 25. Wet FGD Visibility Benefits at Coletto Creek Unit 1 (CAMx)

<b>Unit</b>	<b>Improvement at Wichita Mountains (dv)</b>	<b>Improvement at Caney Creek (dv)</b>	<b>Total Cumulative Visibility Benefit (dv) <sup>1</sup></b>	<b>Baseline Total Cumulative number of days over 0.5/1.0 dv<sup>2</sup></b>	<b>Reduction in number of days above 0.5/1.0 dv<sup>3</sup></b>
Coletto Creek 1	0.668	0.606	5.233	17 / 0	17 / 0

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario runs summed across 15 Class I areas included in the CAMx modeling

<sup>2</sup> Baseline Total Cumulative number of days over 0.5 (1.0) dv is calculated as the sum of the number of modeled days at each of the 15 Class I area impacted over the threshold

<sup>3</sup> Reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the 15 Class I areas included in the CAMx modeling for the baseline scenario subtracted by the number of days over the threshold for the control scenario.

CAMx modeling results indicate that wet FGD will eliminate all days impacted over 0.5 dv at all Class I areas. At the most impacted Class I area, wet FGD will result in visibility improvements of 0.6 or more on the most impacted days at both Caney Creek and the Wichita Mountains. In addition, seven other Class I areas are improved by amounts ranging from 0.356 to 0.531 dv on the maximum impacted days with wet FGD. DSI operated at 50% control results in approximately half of the wet FGD visibility benefits at the most impacted Class I areas and half of the cumulative benefits over the 15 class I areas included in the modeling.

We also conclude that wet FGD is very cost-effective at \$2,127/ton and well within a range that we have previously found to be acceptable and more cost-effective than DSI. We consider the significant visibility benefits that will result justify the cost of wet FGD at the Coletto Creek Unit 1. We therefore propose that SO<sub>2</sub> BART for Coletto Creek Unit 1 should be based on the installation of wet FGD at an emission limit of 0.04 lbs/MMBtu based on a 30 BOD.

#### 4. Welsh 1

In reviewing Welsh Unit 1, we conclude that the installation of a wet FGD will result in significant visibility benefits. We summarize some of these visibility benefits in the tables below:

Table 26. Wet FGD Visibility Benefits at Welsh Unit 1 (CALPUFF)

<b>Source</b>	<b>Improvement at Caney Creek (dv)</b>	<b>Improvement at Wichita Mtns. (dv)</b>	<b>Total Cumulative Visibility Benefit (dv)<sup>1</sup></b>	<b>Cumulative Reduction in number of days above 0.5 dv<sup>2</sup></b>	<b>Cumulative Reduction in number of days above 1.0 dv<sup>2</sup></b>
Welsh 1	0.72	0.41	1.66	31	15

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario runs summed across the following Class I areas: Caney Creek, Wichita Mountains, and Upper Buffalo.

<sup>2</sup> Using the three years (2001-2003) of CALPUFF modeling results an annual average of the number of days reduced was calculated. The reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the following Class I areas for the baseline scenario subtracted by the number of days over the threshold for the control scenario: Caney Creek, Wichita Mountains, and Upper Buffalo.

In evaluating Welsh we note there are three Class I areas within the typical range that CALPUFF has been used for assessing visibility impacts. Using the three years of 2001-2003 CALPUFF modeling results we assessed the annual average number of days when the facility impacts were greater than 0.5 del-dv at each of the Class I areas and then summed this value for each of the Class I areas to yield an annual average cumulative value for total number of days

impacts were above 0.5 del-dv at all Class I areas within typical CALPUFF range. The reduction in the number of days (annual average) was calculated as the cumulative value of the number of days over the 0.5 del-dv threshold across the Class I areas for the baseline scenario subtracted by the cumulative number of days over the threshold for the control scenario. For the three Class I areas that are within the range that CALPUFF is typically used, the 2001-2003 CALPUFF modeling results indicate wet FGD on both units will eliminate 31 days annually (3 year average) when the facility has impacts greater than 0.5 delta deciview. The same analysis was also calculated using a 1.0 del-dv threshold and is reported in the table above. CALPUFF modeling indicates that DSI operated at 50% results in approximately half the benefits of WGFD.

Table 27. Wet FGD Visibility Benefits at Welsh Unit 1 (CAMx)

<b>Unit</b>	<b>Improvement at Caney Creek (dv)</b>	<b>Improvement at Mingo Wilderness (dv)</b>	<b>Total Cumulative Visibility Benefit (dv)<sup>1</sup></b>	<b>Baseline Total Cumulative number of days over 0.5/1.0 dv<sup>2</sup></b>	<b>Reduction in number of days above 0.5/1.0 dv<sup>3</sup></b>
Welsh 1	1.521	0.579	4.683	65 / 9	60 / 9
Source (Welsh 1 & 2)	3.754	1.973	13.179	211 / 72	206 / 72

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario runs summed across 15 Class I areas included in the CAMx modeling.

<sup>2</sup> Baseline Total Cumulative number of days over 0.5 (1.0) dv is calculated as the sum of the number of modeled days at each of the 15 Class I area impacted over the threshold.

<sup>3</sup> Reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the 15 Class I areas included in the CAMx modeling for the baseline scenario subtracted by the number of days over the



threshold for the control scenario.

CAMx modeling results indicate that wet FGD on unit 1 will eliminate all days impacted by the unit over 1 dv at all Class I areas and all but 5 days impacted over 0.5 dv. At the most impacted Class I area, wet FGD on unit 1 will result in visibility improvements of 1.521 dv on the most impacted days at Caney Creek. In addition to the visibility benefits at Caney Creek and Mingo, visibility benefits at two additional Class I areas exceed 0.5 dv. We note that source-wide benefits shown include the benefits from the shutdown of unit 2. In addition, cumulative benefits from wet FGD on unit 1 over all 15 Class I areas exceeds 4.5 dv on the maximum impacted days. DSI operated at 50% control results in approximately half of the wet FGD visibility benefits at the most impacted Class I areas and half of the cumulative benefits over the 15 class I areas included in the modeling.

We conclude that although at \$3,824/ton, the cost-effectiveness of wet FGD is higher than for other facilities, it remains within a range that we have previously found to be acceptable. We consider the significant visibility benefits that will result from the installation of wet FGD at Welsh Unit 1 to justify the cost. DSI at 50% control is slightly more cost-effective but results in much less visibility benefit. We therefore propose that SO<sub>2</sub> BART for Welsh Unit 1 should be based on the installation of wet FGD at an emission limit of 0.04 lbs/MMBtu based on a 30 BOD.

## **5. Harrington 061B & 062B**

In reviewing Harrington, we conclude that the installation of SDA on Units 061B and 062B will result in significant visibility benefits. We summarize some of these visibility benefits in the tables below:

Table 28. SDA Visibility Benefits at Harrington (CALPUFF)

<b>Source</b>	<b>Improvement at Salt Creek (dv)</b>	<b>Improvement at Wichita Mtns. (dv)</b>	<b>Total Cumulative Visibility Benefit (dv)<sup>1</sup></b>	<b>Cumulative Reduction in number of days above 0.5 dv<sup>2</sup></b>	<b>Cumulative Reduction in number of days above 1.0 dv<sup>2</sup></b>
Harrington 061B & 062B	0.72	0.41	2.56	53.67	26

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario runs summed across the following Class I areas: Salt Creek, Wichita Mountains, Pecos, Carlsbad Caverns, and Wheeler Peak.

<sup>2</sup> Using the three years (2001-2003) of CALPUFF modeling results an annual average of the number of days reduced was calculated. The reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the following Class I areas for the baseline scenario subtracted by the number of days over the threshold for the control scenario: Salt Creek, Wichita Mountains, Pecos, Carlsbad Caverns, and Wheeler Peak.

In evaluating Harrington we note there are five Class I areas within the typical range that CALPUFF has been used for assessing visibility impacts. Using the three years of 2001-2003 CALPUFF modeling results we assessed the annual average number of days when the facility impacts were greater than 0.5 del-dv at each of the Class I areas and then summed this value for each of the Class I areas to yield an annual average cumulative value for total number of days impacts were above 0.5 del-dv at all Class I areas within typical CALPUFF range. The reduction in the number of days (annual average) was calculated as the cumulative value of the number of days over the 0.5 del-dv threshold across the Class I areas for the baseline scenario subtracted by the cumulative number of days over the threshold for the control scenario. For the five Class I

areas that are within the range that CALPUFF is typically used, the 2001-2003 CALPUFF modeling results indicate wet FGD on both units will eliminate 5.6 days annually (3 year average) when the facility has impacts greater than 0.5 delta deciview. The same analysis was also calculated using a 1.0 del-dv threshold and is reported in the table above. CALPUFF modeling indicates that DSI operated at 50% results in approximately half the benefits of WGFD.

Table 29. SDA Visibility Benefits at Harrington (CAMx)

<b>Unit</b>	<b>Improvement at Salt Creek (dv)</b>	<b>Improvement at Wichita Mountains (dv)</b>	<b>Total Cumulative Visibility Benefit (dv) <sup>1</sup></b>	<b>Baseline Total Cumulative number of days over 0.5/1.0 dv<sup>2</sup></b>	<b>Reduction in number of days above 0.5/1.0 dv<sup>3</sup></b>
Harrington 061B	1.170	0.643	4.832	17 / 5	11 / 3
Harrington 062B	1.279	0.723	5.379	17 / 5	11 / 3
Source (061B & 0622B)	2.053	1.130	9.329	51 / 17	37 / 11

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario runs summed across 15 Class I areas included in the CAMx modeling.

<sup>2</sup> Baseline Total Cumulative number of days over 0.5 (1.0) dv is calculated as the sum of the number of modeled days at each of the 15 Class I area impacted over the threshold.

<sup>3</sup> Reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the 15 Class I areas included in the CAMx modeling for the baseline scenario subtracted by the number of days over the threshold for the control scenario.

CAMx modeling results indicate SDA on these units will eliminate more than half of all days impacted by the units over 1 dv and 0.5 dv at all Class I areas. At the most impacted Class I

areas, SDA on each unit will each result in visibility improvements of approximately 1.2 dv on the most impacted days at Salt Creek and 0.6 – 0.7 dv at Wichita Mountains, reducing the number of days impacted over 0.5 and 1.0 dv at these Class I areas. In addition, cumulative benefits from SDA on both units over all 15 Class I areas exceeds 9.3 dv on the maximum impacted days. DSI operated at 50% control results in approximately half of the SDA visibility benefits at the most impacted Class I areas and half of the cumulative benefits over the 15 class I areas included in the modeling.

We also conclude that SDA is cost-effective at \$3,904 for Unit 061B and \$4,180/ton for Unit 062B and, remains within a range that we have previously found to be acceptable. In contrast to other units we have reviewed, the 50% control DSI cost-effectiveness is much less than that for SDA. However, given the additional large total cumulative visibility benefits that will result from the installation of SDA over DSI at 50% control, we consider SDA to justify the additional cost. We therefore propose that SO<sub>2</sub> BART for Harrington Units 061B and 062B should be based on the installation of SDA at an emission limit of 0.06 lbs/MMBtu based on a 30 BOD.

## **6. W. A. Parish WAP 5 & 6**

In reviewing W A Parish, we conclude that the installation of wet FGD on Units 5 and 6 will result in significant visibility benefits. We summarize some of these visibility benefits in the tables below:

Table 30. Wet FGD Visibility Benefits at W A Parish (CAMx)

<b>Unit</b>	<b>Improvement at Caney Creek (dv)</b>	<b>Improvement at Upper Buffalo (dv)</b>	<b>Total Cumulative Visibility Benefit (dv) <sup>1</sup></b>	<b>Baseline Total Cumulative number of days over 0.5/1.0 dv<sup>2</sup></b>	<b>Reduction in number of days above 0.5/1.0 dv<sup>3</sup></b>
W A Parish 5	1.518	0.943	8.171	51 / 9	51 / 9
W A Parish 6	1.492	0.922	7.979	48 / 7	48 / 7
Source (WAP 4, 5 & 6)	2.665	1.760	15.301	163 / 49	162 / 49

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control scenario runs summed across 15 Class I areas included in the CAMx modeling.

<sup>2</sup> Baseline Total Cumulative number of days over 0.5 (1.0) dv is calculated as the sum of the number of modeled days at each of the 15 Class I area impacted over the threshold.

<sup>3</sup> Reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the 15 Class I areas included in the CAMx modeling for the baseline scenario subtracted by the number of days over the threshold for the control scenario.

CAMx modeling results indicate that wet FGD on each of these units will eliminate all days impacted by each unit over 1 dv and 0.5 dv at all Class I areas. At the most impacted Class I areas, wet FGD on each unit will each result in visibility improvements of approximately 1.5 dv on the most impacted days at Caney Creek and 0.9 dv at Upper Buffalo. Nine Class I areas have modeled source-wide baseline impacts over 1 dv, and wet FGD on both units results in source-wide improvements of 1 dv or greater on the maximum impacted days at eight of these Class I areas. In addition, cumulative benefits from wet FGD on both units over all 15 Class I areas exceeds 15 dv on the maximum impacted days. DSI operated at 50% control results in approximately half of the wet FGD visibility benefits at the most impacted Class I areas and half of the cumulative benefits over the 15 class I areas included in the modeling. We note that source-wide modeling includes a small impact from WAP 4. This unit is gas-fired and was

modeled at baseline emissions levels for both the baseline and control case scenarios.

We conclude that wet FGD is cost-effective at \$2,417/ton for Unit 5 and \$2,259/ton for Unit 6, and remains well within a range that we have previously found to be acceptable. DSI at 50% control is approximately the same cost-effectiveness but results in significantly less visibility benefit. We consider the cost of wet FGD at the W A Parish units to be justified by the significant visibility benefits that will result. We therefore propose that SO<sub>2</sub> BART for W A Parish Units 5 and 6 should be based on the installation of wet FGD at an emission limit of 0.04 lbs/MMBtu based on a 30 BOD.

## 7. J T Deely 1 & 2

In reviewing J T Deely, we conclude that the installation of wet FGD on Units 1 and 2 will result in significant visibility benefits. We summarize some of these visibility benefits in the tables below:

Table 31. Wet FGD Visibility Benefits at J T Deely (CAMx)

<b>Unit</b>	<b>Improvement at Wichita Mountains (dv)</b>	<b>Improvement at Caney Creek (dv)</b>	<b>Total Cumulative Visibility Benefit (dv)<sup>1</sup></b>	<b>Baseline Total Cumulative number of days over 0.5/1.0 dv<sup>2</sup></b>	<b>Reduction in number of days above 0.5/1.0 dv<sup>3</sup></b>
J T Deely 1	0.487	0.283	4.785	10 / 0	10 / 0
J T Deely 2	0.298	0.217	3.650	7 / 0	7 / 0
Source (J T Deely 1 & 2, Sommers 1 & 2)	0.699	0.518	8.943	89 / 13	84 / 13

<sup>1</sup> Cumulative benefit is calculated as the difference in the maximum visibility impacts from the baseline and control

scenario runs summed across 15 Class I areas included in the CAMx modeling.

<sup>2</sup> Baseline Total Cumulative number of days over 0.5 (1.0) dv is calculated as the sum of the number of modeled days at each of the 15 Class I area impacted over the threshold.

<sup>3</sup> Reduction in number of days is calculated as the sum of the number of days over the chosen threshold across the 15 Class I areas included in the CAMx modeling for the baseline scenario subtracted by the number of days over the threshold for the control scenario.

CAMx modeling results indicate wet FGD on each of these units will eliminate all days impacted by each unit over 0.5 dv at all Class I areas. At the most impacted Class I areas, wet FGD on each unit will each result in visibility improvements of 0.487 dv and 0.298 dv on the most impacted days at Wichita Mountains and 0.283 dv and 0.217 dv at Caney Creek. Larger visibility improvements on the most impacted days are anticipated at other Class I areas. Benefits from wet FGD on unit 1 are 0.583 dv at Big Bend, 0.511 dv at Salt Creek, 0.449 dv at Guadalupe Mountains and Carlsbad Caverns, and 0.475 dv at White Mountains. Benefits from wet FGD on unit 2 are 0.583 dv at Big Bend, 0.441 dv at Salt Creek, 0.354 dv at Guadalupe Mountains and Carlsbad Caverns, and 0.375 dv at White Mountains. DSI operated at 50% control results in approximately half of the wet FGD visibility benefits at the most impacted Class I areas and half of the cumulative benefits over the 15 Class I areas included in the modeling. We note that source-wide modeling includes the impact from Sommers units 1 and 2, and as discussed in the BART Modeling TSD, control case scenarios for these units included benefits from switching to lower sulfur fuel oil. However, these modeled improvements are a small fraction of the total visibility benefits from controls at the source.

We conclude that wet FGD is cost-effective at \$3,898/ton for Unit 1 and \$3,712/ton for Unit 2, and remains within a range that we have previously found to be acceptable. We consider the cost of wet FGD at the J T Deely units to be justified by the significant visibility benefits that

will result at a number of impacted Class I areas. DSI at 50% control is slightly more cost-effective but results in much less visibility benefit. We therefore propose that SO<sub>2</sub> BART for J T Deely Units 1 and 2 should be based on the installation of wet FGD at an emission limit of 0.04 lbs/MMBtu based on a 30 BOD.<sup>134</sup>

## **B. SO<sub>2</sub> BART for Coal-fired Units with Underperforming Scrubbers**

The BART Guidelines state that underperforming scrubber systems should be evaluated for upgrades.<sup>135</sup> Other than upgrading the existing scrubbers, all of which are wet FGDs, there are no competing control technologies that could be considered for these units. The CALPUFF modeling generated facility-wide impacts and the benefits of the scrubber upgrade on Monticello Unit 3 and the three Martin Lake facilities are included in Table 17 above. The following is a listing of each of the affected units along with the resulting CAMx modeled visibility benefits from upgrading their existing scrubbers:

Table 32. Visibility Benefit for Coal-fired Units with Existing SO<sub>2</sub> Controls (CAMx)

<b>Unit</b>	Improvement at most impacted (dv)	Improvement at 2nd most impacted (dv)	Total Cumulative Visibility Benefit (dv)	Reduction in number of days above 0.5 dv at ----- -	Reduction in number of days above 1.0 dv at ----- -
Monticello 3	3.719 (CACR)	2.282 (WIMO)	11.940	200 / 66	188 / 66
Martin Lake 1	1.165 (CACR)	1.449 (UPBU)	7.575	160 / 41	151 / 40
Martin Lake 2	0.655 (CACR)	1.164 (UPBU)	6.199	150 / 41	134 / 39
Martin Lake 3	1.146 (CACR)	1.478 (UPBU)	7.863	173 / 47	163 / 46

<sup>134</sup> We have read reports that CPS Energy, is planning to retire J T Deely Units 1 and 2 by the end of 2018, but we have no enforceable documents to that effect.

<sup>135</sup> 70 FR 39171 (July 6, 2005).



As we state elsewhere in this proposal, because our cost-effectiveness calculations depend on information claimed by the companies as CBI we cannot present it here, except to note that in all cases, the cost effectiveness was \$1,156/ton or less. We conclude that in all cases, scrubber upgrades are very cost-effective and result in very significant visibility benefits, significantly reducing the impacts from these units and reducing the number of days that Class I areas are impacted over 1.0 dv and 0.5 dv. We propose that SO<sub>2</sub> BART for all other coal-fired units with underperforming scrubbers should be based on the wet FGD upgrade control levels we have used in our BART analyses of them.

### **C. SO<sub>2</sub> BART for Gas-fired Units that Burn Oil**

In analyzing potential controls for those gas-fired units that occasionally burn fuel oil we considered scrubber retrofits and lower sulfur fuel oil. We concluded that the cost-effectiveness of scrubber retrofits for these units were likely very high, and not worth the potential visibility benefit.

We also concluded that the cost-effectiveness of switching to a No. 2 fuel oil with a sulfur content of 0.3% is \$11,218/gallon, and the cost-effectiveness of switching to ULSD with a sulfur content of 0.0015% is \$8,627/gallon. We further noted that one facility already had a contract in place for ULSD at a lower price than we assumed, which if used in our analysis would result in a cost effectiveness of \$3,970/ton. Although the cost-effectiveness of switching to a lower sulfur oil (assuming our price for ULSD of \$1.667/gal) is higher than other controls that we have typically required under BART, we note certain mitigating factors.

For instance, arguing against control, our calculated cost-effectiveness values are high in

relation to other BART controls we have required in the past. Also, our visibility modeling necessarily utilized the maximum SO<sub>2</sub> emissions over a 24-hour timeframe,<sup>136</sup> resulting in the configuring of our visibility modeling to analyze the maximum short-term potential impacts that could occur when the unit burns fuel oil. However, as we discuss elsewhere in our proposal, these units are primarily gas-fired, and have only occasionally burned fuel oil. Their most recent practices appear to reinforce this trend.

Arguing for control, unlike the wet FGD and SDA scrubbers we have costed in other sections of this TSD, which have large capital costs, we are unaware of any significant capital costs involved in switching fuels. This means the overall annual costs are relatively minor, if the units in question adhere to their historical usages. Also, because the units in question have only occasionally burned fuel oil, they have the option to avoid the cost of fuel switching entirely by not continuing to burn fuel oil and instead relying solely on their primary fuel of natural gas. Lastly, we note that the prevalence of ULSD in the fuel oil market is such that it appears to be gradually replacing most other No. 2 fuel oil applications.<sup>137</sup>

The preamble to the Regional Haze Rule counseled that a one percent sulfur content limitation on fuel oil should be considered as a “starting point,”<sup>138</sup> and the existing sulfur content limits are lower than one percent. Considering all of this information, we propose that SO<sub>2</sub> BART for the gas-fired units that occasionally burn fuel oil should be no further control. In so doing, we acknowledge the data quality issues we have discussed concerning these units and we

---

<sup>136</sup> See the BART Guidelines at 70 FR 39162, July 6, 2005: “We recommend that States use the 24 hour average actual emission rate from the highest emitting day of the meteorological period modeled, unless this rate reflects periods start-up, shutdown, or malfunction.”

<sup>137</sup> <http://www.eia.gov/todayinenergy/detail.php?id=5890>. <http://blogs.platts.com/2014/05/07/heating-oil-new-york-sulfur/>. <http://oilandenergyonline.com/challenges-to-the-northeast-supply-picture/>

<sup>138</sup> 70 FR at 39134

specifically request comments on all aspects of our proposed BART analysis for these units from all interested parties. Based on the comments we receive, we may either finalize our BART determinations for these units as proposed, or we may revise them without a re-proposal.

#### **D. PM BART**

We propose to disapprove the portion of the Texas Regional Haze SIP that sought to address the BART requirement for EGUs for PM. We note that all of the coal-fired units are either currently fitted with a baghouse, an ESP and a polishing baghouse, or an ESP. We conclude that the cost of retrofitting the subject units with a baghouse would be extremely high compared to the visibility benefit for any of the units currently fitted with an ESP.

Consequently, we propose that PM BART for the coal-fired units is an emission limit of 0.030 lb/MMBtu along with work practice standards. We propose that PM and SO<sub>2</sub> BART for the units that only fire gas be pipeline natural gas. We propose that PM and SO<sub>2</sub> BART for those gas-fired units that occasionally burn fuel oil be the existing permitted fuel oil sulfur content of 0.7% sulfur by weight or pipeline natural gas.

### **V. Proposed Actions**

#### **A. Regional Haze**

We are proposing to disapprove the portion of the Texas Regional Haze SIP that sought to address the BART requirement for EGUs for PM. We are proposing to promulgate a FIP as described in this notice and summarized in this section to satisfy the remaining outstanding regional haze requirements that are unmet by the Texas' regional haze SIP and that we did not

take action on in our January 5, 2016 final action.<sup>139</sup> Our proposed FIP includes SO<sub>2</sub> and PM BART emission limits for sources in Texas to reduce emissions that contribute to regional haze in Texas' two Class I areas and other nearby Class I areas and make reasonable progress for the first regional haze planning period for Texas' two Class I areas.

## **1. NO<sub>x</sub> BART**

As discussed elsewhere in this proposal, we are proposing a FIP to replace Texas' reliance on CAIR with reliance on CSAPR to address the NO<sub>x</sub> BART requirements for EGUs. This portion of our proposal is based on: the recent update to the CSAPR rule<sup>140</sup>; and the EPA's finalization of a separate proposed finding that the EPA's actions in response to the D.C. Circuit's remand would not adversely impact our 2012 demonstration that CSAPR is better than BART.<sup>141</sup> We cannot finalize this portion of the proposed FIP unless and until the EPA finalizes the proposed finding that CSAPR continues to be better than BART because finalization of that proposal would allow for reliance on CSAPR participation as an alternative to source-specific EGU BART for NO<sub>x</sub> in Texas.

## **2. SO<sub>2</sub> BART for Coal-fired Units**

We propose that SO<sub>2</sub> BART for the coal-fired units be the following SO<sub>2</sub> emission limits to be met on a 30 Boiler Operating Day (BOD) period:

Table 33. Proposed SO<sub>2</sub> BART Emissions Limits for Coal-fired Units

---

<sup>139</sup> 81 FR 296.

<sup>140</sup> 81 FR 74504.

<sup>141</sup> 81 FR 78954.

	Unit	Proposed SO <sub>2</sub> emission limit (lbs/MMBtu)
Scrubber Upgrades	Martin Lake 1	0.12
	Martin Lake 2	0.12
	Martin Lake 3	0.11
	Monticello 3	0.05
Scrubber Retrofits	Big Brown 1	0.04
	Big Brown 2	0.04
	Monticello 1	0.04
	Monticello 2	0.04
	Coleto Creek 1	0.04
	Fayette 1	0.04
	Fayette 2	0.04
	Harrington 061B	0.06
	Harrington 062B	0.06
	J T Deely 1	0.04
	J T Deely 2	0.04
	W A Parish 5	0.04
	W A Parish 6	0.04
	Welsh 1	0.04

We propose that compliance with these limits be within five years of the effective date of our final rule for Big Brown Units 1 and 2; Monticello Units 1 and 2; Coleto Creek Unit 1; Harrington Units 061B and 062B; J T Deely Units 1 and 2; W A Parish Units 5 and 6; and Welsh Unit 1. This is the maximum amount of time allowed under the Regional Haze Rule for BART compliance. We based our cost analysis on the installation of wet FGD and SDA scrubbers for these units, and in the past we have typically required that scrubber retrofits under BART be

operational within five years.

We propose that compliance with these limits be within three years of the effective date of our final rule for Martin Lake Units 1, 2, and 3; and Monticello Unit 3. We believe that three years is appropriate for these units, as we based our cost analysis on upgrading the existing wet FGD scrubbers of these units, which we believe to be less complex and time consuming than the construction of a new scrubber.

We propose that compliance with these limits be within one year for Fayette Units 1 and 2. We believe that one year is appropriate for these units because the Fayette units have already demonstrated their ability to meet these emission limits.

### **3. Potential Process for Alternative Scrubber Upgrade Emission Limits**

In our BART FIP TSD, we discuss how we calculated the SO<sub>2</sub> removal efficiency of the units we analyzed for scrubber upgrades. We note that due to a number of factors we could not accurately quantify, our calculations of scrubber efficiency may contain some error. Based on the results of our scrubber upgrade cost analysis, we do not believe that any reasonable error in calculating the true tons of SO<sub>2</sub> removed affects our proposed decision to require emission reductions, as all of the scrubber upgrades we analyzed are cost-effective (low \$/ton). In other words, were we to make reasonable adjustments in the tons removed to account for any potential error in our scrubber efficiency calculation, we would still propose to upgrade these SO<sub>2</sub> scrubbers. We believe we have demonstrated that upgrading an underperforming SO<sub>2</sub> scrubber is one of the most cost-effective pollution control upgrades a coal fired power plant can implement to improve the visibility at Class I areas. However, our proposed FIP does specify a SO<sub>2</sub> emission limit that is based on 95% removal in all cases. This is below the upper end of

what an upgraded wet SO<sub>2</sub> scrubber can achieve, which is 98–99%, as we have noted in our BART FIP TSD. We believe that a 95% control assumption provides an adequate margin of error for any of the units for which we have proposed scrubber upgrades, such that they should be able to comfortably attain the emission limits we have proposed. However, for the operator of any unit that disagrees with us on this point, we propose the following:

(1) The affected unit should comment why it believes it cannot attain the SO<sub>2</sub> emission limit we have proposed, based on a scrubber upgrade that includes the kinds of improvements (e.g., elimination of bypass, wet stack conversion, installation of trays or rings, upgraded spray headers, upgraded ID fans, using all recycle pumps, etc.) typically included in a scrubber upgrade.

(2) After considering those comments, and responding to all relevant comments in a final rulemaking action, should we still require a scrubber upgrade in our final FIP we will provide the company the following option in the FIP to seek a revised emission limit after taking the following steps:

(a) Install a CEMS at the inlet to the scrubber.

(b) Pre-approval of a scrubber upgrade plan conducted by a third party engineering firm that considers the kinds of improvements (e.g., elimination of bypass, wet stack conversion, installation of trays or rings, upgraded spray headers, upgraded ID fans, using all recycle pumps, etc.) typically performed

during a scrubber upgrade. The goal of this plan will be to maximize the unit's overall SO<sub>2</sub> removal efficiency.

(c) Installation of the scrubber upgrades.

(d) Pre-approval of a performance testing plan, followed by the performance testing itself.

(e) A pre-approved schedule for 2.a through 2.d.

(f) Should we determine that a revision of the SO<sub>2</sub> emission limit is appropriate, we will have to propose a modification to the BART FIP after it has been promulgated. It should be noted that any proposal to modify the SO<sub>2</sub> emission limit will be based largely on the performance testing and may result in a proposed increase or decrease of that value.

#### **4. SO<sub>2</sub> BART for Gas-fired Units that Burn Oil**

We propose that SO<sub>2</sub> BART for the following gas-fired units that occasionally burn fuel oil be the existing permit limits for the sulfur content of the fuel oil:

Table 34: Proposed BART SO<sub>2</sub> Emission Limits Gas Units that Occasionally Burn Oil



<b>Facility</b>	<b>Fuel Oil Sulfur Content (percent by weight)</b>
Graham 2	0.7
Newman 2*	0.7
Newman 3*	0.7
O W Sommers 1	0.7
O W Sommers 2	0.7
Stryker Creek ST2	0.7
Wilkes 1	0.7

\* The Newman Units 2 and 3 are further limited to burning fuel oil for no more than 876 hours per year.

## 5. PM BART

We propose that PM BART limits for the coal units, Big Brown Units 1 and 2; Monticello Units 1, 2, and 3; Martin Lake Units 1, 2, and 3; Coletto Creek Unit 1; J T Deely Units 1 and 2; W A Parish Units 5 and 6; Welsh Unit 1; Harrington Units 061B and 062B; and Fayette Units 1 and 2 are 0.030 lb/MMBtu and work practice standards, which we present below:

Table 35. PM BART Emissions Standards and Work Practice Standards

<b>Unit Type</b>	<b>PM BART Proposal</b>
Coal-Fired BART Units	0.03 lb/MMBtu filterable PM Table 3 to Subpart UUUUU
Gas-Fired Only BART Units	Pipeline quality natural gas
Oil-Fired BART Units when not firing natural gas	Fuel Content not to exceed 0.7% sulfur by weight (also SO <sub>2</sub> BART)

We propose that compliance with these emissions standards and work practice standards be the effective date of our final rule, as the affected facilities' should already be meeting them.

We propose that PM and SO<sub>2</sub> BART for the units that only fire gas, Newman Unit 4; W A Parish Unit 4; and Wilkes Units 2 and 3 be pipeline natural gas.

We propose that PM and SO<sub>2</sub> BART for those gas-fired units that occasionally burn fuel oil, Newman Unit 2 and 3; O W Sommers Units 1 and 2; Stryker Creek Unit ST2; and Wilkes Unit 1 be the existing permitted fuel oil sulfur content of 0.7% sulfur by weight.

## **B. Interstate Visibility Transport**

We are proposing to disapprove Texas' SIP revisions addressing interstate visibility transport under CAA section 110(a)(2)(D)(i)(II) for six NAAQS. We further are proposing a FIP to fully address Texas' interstate visibility transport obligations for: (1) 1997 8-hour ozone, (2) 1997 PM<sub>2.5</sub> (annual and 24 hour), (3) 2006 PM<sub>2.5</sub> (24-hour), (4) 2008 8-hour ozone, (5) 2010 1-hour NO<sub>2</sub> and (6) 2010 1-hour SO<sub>2</sub>. The proposed FIP is based on the finding that our proposed action to fully address the Texas Regional Haze BART program is adequate to ensure that emissions from Texas do not interfere with measures to protect visibility in nearby states in accordance with CAA section 110(a)(2)(D)(i)(II).

## **VI. Statutory and Executive Order Reviews**

### **A. Executive Order 12866: Regulatory Planning and Overview**

This proposed action is not a "significant regulatory action" under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011). The proposed FIP would not constitute a rule of general applicability, because it only proposes source specific requirements for particular, identified facilities (8 total).

**B. Paperwork Reduction Act**

This proposed action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. Section 3501 et seq. Because it does not contain any information collection activities, the Paperwork Reduction Act does not apply. See 5 CFR 1320(c).

**C. Regulatory Flexibility Act**

The Regulatory Flexibility Act (RFA) generally requires an agency to conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and small governmental jurisdictions. For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) a small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's proposed rule on small entities, I certify that this action will not have a significant impact on a substantial number of small entities. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net

burden or otherwise has a positive economic effect on the small entities subject to the rule. This rule does not impose any requirements or create impacts on small entities. This proposed FIP action under Section 110 of the CAA will not create any new requirement with which small entities must comply. This action, when finalized, will apply to 14 facilities owned by 8 companies, none of which are small entities. Accordingly, it affords no opportunity for the EPA to fashion for small entities less burdensome compliance or reporting requirements or timetables or exemptions from all or part of the rule. The fact that the CAA prescribes that various consequences (e.g., emission limitations) may or will flow from this action does not mean that the EPA either can or must conduct a regulatory flexibility analysis for this action. We have therefore concluded that, this action will have no net regulatory burden for all directly regulated small entities.

#### **D. Unfunded Mandates Reform Act**

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on state, local, and Tribal governments and the private sector. Under Section 202 of UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with “Federal mandates” that may result in expenditures to state, local, and Tribal governments, in the aggregate, or to the private sector, of \$100 million or more (adjusted for inflation) in any one year. Before promulgating an EPA rule for which a written statement is needed, Section 205 of UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of Section 205 of

UMRA do not apply when they are inconsistent with applicable law. Moreover, Section 205 of UMRA allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under Section 203 of UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that Title II of UMRA does not apply to this proposed rule. In 2 U.S.C. Section 1502(1) all terms in Title II of UMRA have the meanings set forth in 2 U.S.C. Section 658, which further provides that the terms “regulation” and “rule” have the meanings set forth in 5 U.S.C. Section 601(2). Under 5 U.S.C. Section 601(2), “the term ‘rule’ does not include a rule of particular applicability relating to . . . facilities.” Because this proposed rule is a rule of particular applicability relating to 12 named facilities, EPA has determined that it is not a “rule” for the purposes of Title II of UMRA.

#### **E. Executive Order 13132: Federalism**

This proposed action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

**F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments**

This proposed rule does not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments. Thus, Executive Order 13175 does not apply to this rule.

**G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks**

Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks<sup>142</sup> applies to any rule that: (1) Is determined to be economically significant as defined under Executive Order 12866; and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. EPA interprets EO 13045 as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under Section 5-501 of the EO has the potential to influence the regulation. This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action is not subject to EO 13045 because it implements specific standards established by Congress in statutes. However, to the extent this proposed rule will limit emissions of SO<sub>2</sub>, NO<sub>x</sub>, and PM, the rule will have a beneficial effect on children's health by reducing air pollution.

---

<sup>142</sup> 62 FR 19885 (Apr. 23, 1997).

## **H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use**

This proposed action is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

## **I. National Technology Transfer and Advancement Act**

Section 12 of the National Technology Transfer and Advancement Act (NTTAA) of 1995 requires Federal agencies to evaluate existing technical standards when developing a new regulation. To comply with NTTAA, EPA must consider and use “voluntary consensus standards” (VCS) if available and applicable when developing programs and policies unless doing so would be inconsistent with applicable law or otherwise impractical. EPA believes that VCS are inapplicable to this action. Today's action does not require the public to perform activities conducive to the use of VCS.

## **J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations**

Executive Order 12898 (59 FR 7629, February 16, 1994), establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States. We have determined that this proposed rule, if finalized, will not have disproportionately high and adverse human health or environmental

effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. This proposed federal rule limits emissions of NO<sub>x</sub>, SO<sub>2</sub>, and PM from 14 facilities in Texas

**List of Subjects in 40 CFR Part 52**

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur dioxides, Visibility, Interstate transport of pollution, Regional haze, Best available control technology.

Dated: December 9, 2016.

**Ron Curry,**

*Regional Administrator, Region 6.*



Title 40, chapter I, of the Code of Federal Regulations is proposed to be amended as follows:

## **PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS**

1. The authority citation for part 52 continues to read as follows:

**Authority:** 42 U.S.C. 7401 *et seq.*

### **Subpart SS – Texas**

2. Section 52.2287 is added to read as follows:

#### **§ 52.2287 Best Available Retrofit Requirements (BART) for SO<sub>2</sub> and Particulate Matter and Interstate pollutant transport provisions; What are the FIP requirements for visibility protection?**

(a) *Applicability.* The provisions of this section shall apply to each owner or operator, or successive owners or operators, of the coal or natural gas burning equipment designated below.

(b) *Definitions.* All terms used in this part but not defined herein shall have the meaning given them in the CAA and in parts 51 and 60 of this title. For the purposes of this section:

*24-hour period* means the period of time between 12:01 a.m. and 12 midnight.

*Air pollution control equipment* includes selective catalytic control units, baghouses, particulate or gaseous scrubbers, and any other apparatus utilized to control emissions of regulated air contaminants that would be emitted to the atmosphere.

*Boiler-operating-day* means any 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time at the steam generating unit.

*Daily average* means the arithmetic average of the hourly values measured in a 24-hour period.

*Heat input* means heat derived from combustion of fuel in a unit and does not include the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources. Heat input shall be calculated in accordance with 40 CFR part 75.

*Owner or Operator* means any person who owns, leases, operates, controls, or supervises any of the coal or natural gas burning equipment designated below.

*PM* means particulate matter.

*Regional Administrator* means the Regional Administrator of EPA Region 6 or his/her authorized representative.

*Unit* means one of the natural gas, gas and/or fuel oil, or coal-fired units covered in this section.

(c) *Emissions Limitations and Compliance Dates for SO<sub>2</sub>*. The owner/operator of the units listed below shall not emit or cause to be emitted pollutants in excess of the following limitations from the subject unit. Compliance with the requirements of this section is required as listed below unless otherwise indicated by compliance dates contained in specific provisions.

Unit	Proposed SO <sub>2</sub> emission limit (lbs/MMBtu)	Compliance Date (from the effective date of the final rule)
Martin Lake 1	0.12	3 years
Martin Lake 2	0.12	3 years
Martin Lake 3	0.11	3 years

Monticello 3	0.05	3 years
Big Brown 1	0.04	5 years
Big Brown 2	0.04	5 years
Monticello 1	0.04	5 years
Monticello 2	0.04	5 years
Coletto Creek 1	0.04	5 years
Fayette 1	0.04	1 year
Fayette 2	0.04	1 year
Harrington 061B	0.06	5 years
Harrington 062B	0.06	5 years
J T Deely 1	0.04	5 years
J T Deely 2	0.04	5 years
W A Parish 5	0.04	5 years
W A Parish 6	0.04	5 years
Welsh 1	0.04	5 years

(d) *Emissions Limitations and Compliance Dates for PM.* The owner/operator of the units listed below shall not emit or cause to be emitted pollutants in excess of the following limitations from the subject unit. Compliance with the requirements of this section is required as listed below unless otherwise indicated by compliance dates contained in specific provisions.

(1) Coal-Fired Units at Big Brown Units 1 and 2; Monticello Units 1, 2, and 3; Martin Lake Units 1, 2, and 3; Coletto Creek Unit 1; J T Deely Units 1 and 2; W A Parish Units 5 and 6; Welsh Unit 1; Harrington Units 061B and 062B; and Fayette Units 1 and 2.

(i) Normal operations: Filterable PM limit of 0.030 lb/MMBtu.

(ii) Work practice standards specified in 40 CFR Part 63, subpart UUUUU, Table 3, and using the relevant definitions in 63.10042.

- (2) Gas-Fired Units at Newman Unit 4; Wilkes Units 2 and 3; and W A Parish Unit 4 shall burn only pipeline natural gas, as defined in 40 CFR 72.1
- (3) Gas-fired units that also burn fuel oil at Graham Unit 2; Newman Units 2 and 3; O W Sommers Units 1 and 2; Stryker Creek Unit ST2; and Wilkes shall burn 0.7% sulfur content fuel or pipeline natural gas, as defined in 40 CFR 72.1.
- (4) Compliance for the units included in Section (d) shall be as of the effective date of the final rule.

*(e) Testing and monitoring.*

(1) No later than the compliance date of this regulation, the owner or operator shall install, calibrate, maintain and operate Continuous Emissions Monitoring Systems (CEMS) for SO<sub>2</sub> on the units covered under paragraph (c). Compliance with the emission limits for SO<sub>2</sub> shall be determined by using data from a CEMS.

(2) Continuous emissions monitoring shall apply during all periods of operation of the coal or natural gas burning equipment, including periods of startup, shutdown, and malfunction, except for CEMS breakdowns, repairs, calibration checks, and zero and span adjustments. Continuous monitoring systems for measuring SO<sub>2</sub> and diluent gas shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. Hourly averages shall be computed using at least one data point in each fifteen minute quadrant of an hour. Notwithstanding this requirement, an hourly average may be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant in an hour) if data are unavailable as a result of performance of

calibration, quality assurance, preventive maintenance activities, or backups of data from data acquisition and handling system, and recertification events. When valid SO<sub>2</sub> pounds per hour, or SO<sub>2</sub> pounds per million Btu emission data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks, or zero and span adjustments, emission data must be obtained by using other monitoring systems approved by the EPA to provide emission data for a minimum of 18 hours in each 24 hour period and at least 22 out of 30 successive boiler operating days.

(3) Compliance with the PM emission limits for units in paragraph (d)(1) shall be demonstrated by the filterable PM methods specified in 40 CFR Part 63, subpart UUUUU, Table 7.

(f) *Reporting and Recordkeeping Requirements.* Unless otherwise stated all requests, reports, submittals, notifications, and other communications to the Regional Administrator required by this section shall be submitted, unless instructed otherwise, to the Director, Multimedia Division, U.S. Environmental Protection Agency, Region 6, to the attention of Mail Code: 6MM, at 1445 Ross Avenue, Suite 1200, Dallas, Texas 75202-2733. For each unit subject to the emissions limitation in this section and upon completion of the installation of CEMS as required in this section, the owner or operator shall comply with the following requirements:

(1) For SO<sub>2</sub> each emissions limit in this section, comply with the notification, reporting, and recordkeeping requirements for CEMS compliance monitoring in 40 CFR 60.7(c) and (d).

(2) For each day, provide the total SO<sub>2</sub> emitted that day by each emission unit. For any hours on any unit where data for hourly pounds or heat input is missing, identify the unit number and monitoring device that did not produce valid data that caused the missing hour.

(3) Records for demonstrating compliance with the SO<sub>2</sub> and PM emission limitations in this section shall be maintained for at least five years.

(g) *Equipment Operations.* At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the unit including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Administrator which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the unit.

(h) *Enforcement.*

(1) Notwithstanding any other provision in this implementation plan, any credible evidence or information relevant as to whether the unit would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed, can be used to establish whether or not the owner or operator has violated or is in violation of any standard or applicable emission limit in the plan.

(2) Emissions in excess of the level of the applicable emission limit or requirement that occur due to a malfunction shall constitute a violation of the applicable emission limit.

3. A new paragraph (f) is added to section 52.2304 is added to read as follows:

**§ 52.2304 Visibility protection.**

\* \* \* \* \*

(f) *Measures Addressing Disapproval Associated with NO<sub>x</sub>, SO<sub>2</sub>, and PM.*

(1) The deficiencies associated with NO<sub>x</sub> identified in EPA's disapproval of the regional haze plan submitted by Texas on March 31, 2009, are satisfied by Section 52.2283.

(2) The deficiencies associated with SO<sub>2</sub> and PM identified in EPA's disapproval of the regional haze plan submitted by Texas on March 31, 2009, are satisfied by Section 52.2287.

WRITTEN REPORT OF GEORGE D. THURSTON  
REGARDING THE PUBLIC HEALTH BENEFITS OF EPA'S PROPOSED RULEMAKING  
REGARDING BEST AVAILABLE RETROFIT TECHNOLOGY FOR TEXAS SOURCES  
UNDER THE REGIONAL HAZE RULE

RE: ENVIRONMENTAL PROTECTION AGENCY,  
Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate  
Transport of Pollution Affecting Visibility Federal Implementation Plan, 82 Fed. Reg. 912  
(proposed Jan. 4, 2017)  
EPA Docket No.: EPA-R06-OAR-2016-0611; FRL-9955-77-Region 6

May 4, 2017



## **PROFESSIONAL EXPERIENCE OF THE AUTHOR**

I am Professor of Environmental Medicine at the New York University (NYU) School of Medicine.

I have a Bachelor of Science degree in Engineering from Brown University, and a Masters and Doctorate of Environmental Health Sciences from the Harvard University School of Public Health. I have over 30 years of subsequent experience in the evaluation of the human health effects of air pollution. I have served on the U.S. Environmental Protection Agency's Clean Air Scientific Committee (CASAC) that advises the EPA on the promulgation of ambient air quality standards from 2007 through 2010, and I have served on the National Academy of Science's Committee on the Health Effects of Incineration from 1995 through 1999. I have published extensively regarding the health effects of inhaled air pollutants on humans, particularly as it relates to asthma attacks, hospital admissions, and mortality, in prominent scientific journals, such as Science, Lancet, Thorax, and The Journal of the American Medical Association (JAMA). I have also been called upon by both the U.S. House of Representatives and the U.S. Senate on multiple occasions in recent decades to provide testimony before them regarding the human health effects of air pollution, most recently on October 10, 2010. A statement of my qualifications is attached to my affidavit as Exhibit T-1.

## **SUMMARY OF REPORT**

The purpose of this report is to document the adverse human health effects that are associated with exposures to air pollutants from fossil fuel-fired utility power plants generally, and in particular, the adverse human health effects that will be avoided by the application of EPA's proposed sulfur dioxide (SO<sub>2</sub>) emission limits for 18 individual electric generating units (EGU) at nine power plants in Texas.

This report documents how emissions from these 18 EGUs contribute to the serious and well-documented adverse human health effects known to be associated with exposure to air pollution from fossil fuel-fired power plants. The documentation I present confirms this conclusion, including both epidemiological and toxicological evidence that I and others have published in the medical and scientific literature. In this work, I also rely upon the expert report submitted by Dr. Gray. Applying this information to the U.S. EPA approved Environmental

Benefits Mapping and Analysis Program (BenMAP) model, I then provide calculations of the excess adverse human health impacts that would occur each year if EPA's proposed BART controls for these 18 Texas EGUs are not installed, as well as the annual economic valuation of those health impacts across 14 states.<sup>1</sup>

## **BACKGROUND**

The adverse health consequences of breathing air pollution from sources such as fossil-fuel fired utility power plants are well documented in the published medical and scientific literature. During the past decades, medical research examining air pollution and public health has shown that air pollution is associated with a host of serious adverse human health effects. This documentation includes impacts revealed by observational epidemiology, and confirmed by controlled chamber exposures, showing consistent associations between air pollution and adverse impacts across a wide range of human health outcomes.

Observational epidemiology studies provide the most compelling and consistent evidence of the adverse effects of air pollution. "Epidemiology" is literally "the study of epidemics," but includes all statistical investigations of human health and potentially causal factors of good or ill health. In the case of air pollution, such studies follow people as they undergo varying real-life exposures to pollution over time, or from one place to another, and then statistically inter-compare the health impacts that occur in these populations when higher (versus lower) exposures to pollution are experienced. In such studies, risks are often reported in terms of a Relative Risk (RR) of illness, wherein a  $RR = 1.0$  is an indication of no change in risk after exposure, while a  $RR > 1.0$  indicates an increase in health problems after pollution exposure, and that air pollution is damaging to health.

These epidemiological investigations are of two types: 1) population-based studies, in which an entire city's population might be considered in the analysis; and 2) cohort studies, in which selected individuals, such as a group of asthmatics, are considered. Both of these types of

---

<sup>1</sup> In April 2015, I prepared a separate report documenting the human health benefits across ten states resulting from EPA's proposed sulfur dioxide emission reductions at 14 Texas EGUs. *See* U.S. Environmental Protection Agency, Approval and Promulgation of Implementation Plans; Texas and Oklahoma; Regional Haze State Implementation Plans; Interstate Transport State Implementation Plan To Address Pollution Affecting Visibility and Regional Haze; Federal Implementation Plan for Regional Haze and Interstate Transport of Pollution Affecting Visibility; Proposed Rule, 79 Fed. Reg. 74,818 (Dec. 16, 2014), EPA Docket No. EPA-R06-OAR-2014-0754-0070.

epidemiologic studies have shown confirmatory associations between air pollution exposures and increasing numbers of adverse impacts, including:

- decreased lung function (a measure of our ability to breathe freely);
- more frequent asthma symptoms;
- increased numbers of asthma and heart attacks;
- more frequent emergency department visits;
- additional hospital admissions; and
- increased numbers of deaths.

The fact that the effects of air pollution have been shown so consistently for so many health endpoints, and in so many locales, indicates these associations to be causal.

Fine Particulate Matter (PM) is among the key air pollutants emitted from power plants that have been revealed by research to adversely affect human health. These research studies have been conducted for a wide array of geographic areas, including eastern North America. PM<sub>2.5</sub> air pollution has been carefully studied in recent decades. PM is composed of two major components: “primary” particles, or soot, emitted directly into the atmosphere by pollution sources, and; “secondary” particulate matter, formed in the atmosphere from gaseous pollutants, such as the sulfur oxides (SO<sub>x</sub>) and nitrogen oxides (NO<sub>x</sub>) also emitted by coal-fired power plants. After formation in the atmosphere, this secondary PM largely condenses upon the smallest existing primary particles that, collectively, represent the greatest surface area for the secondary PM to condense upon. These particles are very small, commonly having an aerodynamic diameter of less than 1.0 micrometer (*um*) – a fraction of the diameter of a human hair. For example, after it is released from a smokestack, gaseous SO<sub>x</sub> is chemically converted in the atmosphere to become sulfate PM.

In addition to lung damage, recent epidemiological and toxicological studies of PM air pollution have shown adverse effects on the heart, including an increased risk of heart attacks. For example, when PM stresses the lung (*e.g.*, by inducing edema), it places extra burden on the heart, which can induce fatal complications for persons with cardiac problems. Indeed, for example, Peters et al. (2001) found that elevated concentrations of fine particles in the air can elevate the risk of Myocardial Infarctions (MI's) within a few hours, and extending 1 day after PM exposure. The Harvard University team found that a 48 percent increase in the risk of MI was associated with an increase of 25  $\mu\text{g}/\text{m}^3$  PM<sub>2.5</sub> during a 2-hour period before the onset of MI,

and a 69 percent increase in risk to be related to an increase of  $20 \mu\text{g}/\text{m}^3$   $\text{PM}_{2.5}$  in the 24-hour average 1 day before the MI onset (Peters et al., 2001). Numerous other U.S. studies have also shown qualitatively consistent acute cardiac effects, such as the Sullivan et al. (2005) study of acute myocardial infarctions in King County, Washington; the Zanobetti and Schwartz (2006) study of hospital admissions through emergency departments for myocardial infarction (ICD-9 code 410); and the Zanobetti et al. (2009) study that examined the relationship between daily  $\text{PM}_{2.5}$  concentrations and emergency hospital admissions for cardiovascular causes, myocardial infarction, and congestive heart failure in 26 U.S. communities during 2000-2003.

Cardiac effects at the biological level have also been documented in both animal and human studies. Animal experiments at Harvard University by Godleski et al. (1996, 2000) indicate that exposures to elevated concentrations of ambient PM can result in cardiac related problems in dogs that had been pre-treated (in order to try to simulate sensitive individuals) to induce coronary occlusion (i.e., narrowed arteries in the heart) before exposing them to air pollution. The most biologically and clinically significant finding was that, in these dogs, the PM affected one of the major electrocardiogram (ECG) markers of heart attacks (myocardial ischemia) in humans, known as elevation of the ST segment. Cardiac effects at the biological level have been found in human studies, as well. For example, Pope et al. (1999) and Gold et al. (1999) found that PM exposure is associated with changes in human heart rate variability. Such changes in heart rate variability (HRV) may reflect changes in cardiac autonomic function and risk of sudden cardiac death. In the Pope et al. study, repeated ambulatory ECG monitoring was conducted on 7 subjects for a total of 29 person-days before, during, and after episodes of elevated pollution. After controlling for differences across patients, elevated particulate levels were found to be associated with (1) increased mean heart rate, (2) decreased SDNN, a measure of overall HRV, (3) decreased SDANN, a measure that corresponds to ultra-low frequency variability, and (4) increased r-MSSD, a measure that corresponds to high-frequency variability. This confirms, at the individual level, that biological changes do occur in heart function as a result of PM exposure, supporting the biological plausibility of the epidemiological associations between PM exposure and cardiac illnesses.

Epidemiologic research conducted on U.S. residents has indicated that acute exposure to PM air pollution is associated with increased risk of mortality. A nationwide time-series statistical analysis by the Health Effects Institute (HEI, 2003) of mortality and  $\text{PM}_{10}$  air pollution in 90 cities across the US indicates that, for each increase of  $10 \mu\text{g}/\text{m}^3$  in daily  $\text{PM}_{10}$  air pollution

concentration, there is an associated increase of approximately 0.3% in the *daily* risk of death. While a 0.3 % change in the daily death risk may seem small, it is important to realize that such added risks apply to the entire population, and accumulate day after day, week after week, and year after year, until they account for thousands of needless daily deaths from air pollution in the U.S. each year. Indeed, I concur with the most recent U.S. EPA Particulate Matter Integrated Science Assessment (ISA) (USEPA, 2009), which unequivocally states that “Together, the collective evidence from epidemiologic, controlled human exposure, and toxicological studies is sufficient to conclude that *a causal relationship exists between short term exposures to PM<sub>2.5</sub> and cardiovascular effects . . . and mortality.*”<sup>2</sup>

In addition to the acute health effects associated with daily PM pollution, the long-term exposure to fine PM is also associated with increased lifetime risk of death and has been estimated to take years from the life expectancy of people living in the most polluted cities, relative to those living in cleaner cities. For example, in the Six-Cities Study (which was one key basis for the setting of the original PM<sub>2.5</sub> annual standard in 1997), Dockery et al. (1993) analyzed survival probabilities among 8,111 adults living in six cities in the central and eastern portions of the United States during the 1970’s and 80’s. The cities were: Portage, WI (P); Topeka, KS (T); a section of St. Louis, MO (L); Steubenville, OH (S); Watertown, MA (M); and Kingston-Harriman, TN (K). Air quality was averaged over the period of study in order to study long-term (chronic) effects. As shown in Figure 1, it was found that the long-term risk of death, relative to the cleanest city, increased with fine particle exposure, even after correcting for potentially confounding factors such as age, sex, race, smoking, etc.

In addition, a study that I wrote with co-authors, published in the Journal of the American Medical Association (JAMA), shows that long-term exposure to combustion-related fine particulate air pollution is an important environmental risk factor for cardiopulmonary and lung cancer mortality. Indeed, as shown in Figure 2, this study indicates that the increase in risk of lung cancer from long-term exposure to PM<sub>2.5</sub> in a city like New York was of roughly the same size as the increase in lung cancer risk of a non-smoker who breathes passive smoke while living with a smoker, or about a 20% increase in lung cancer risk. See Pope, CA, et al., 2002.

---

<sup>2</sup> U.S. Environmental Protection Agency (2009a) (emphasis added).

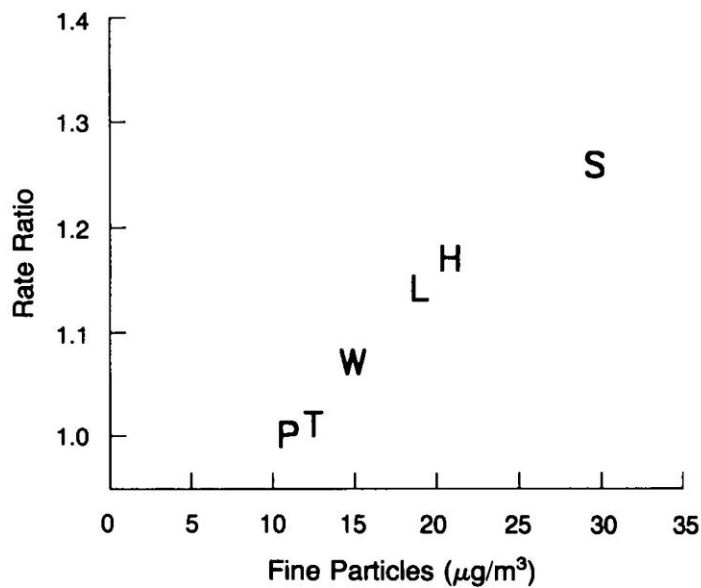


Figure 1. The Harvard Six-Cities Study showed that the lifetime risk of death increased across 6 U.S. cities as the average fine PM levels increased. (Source: Dockery et al., 1993).

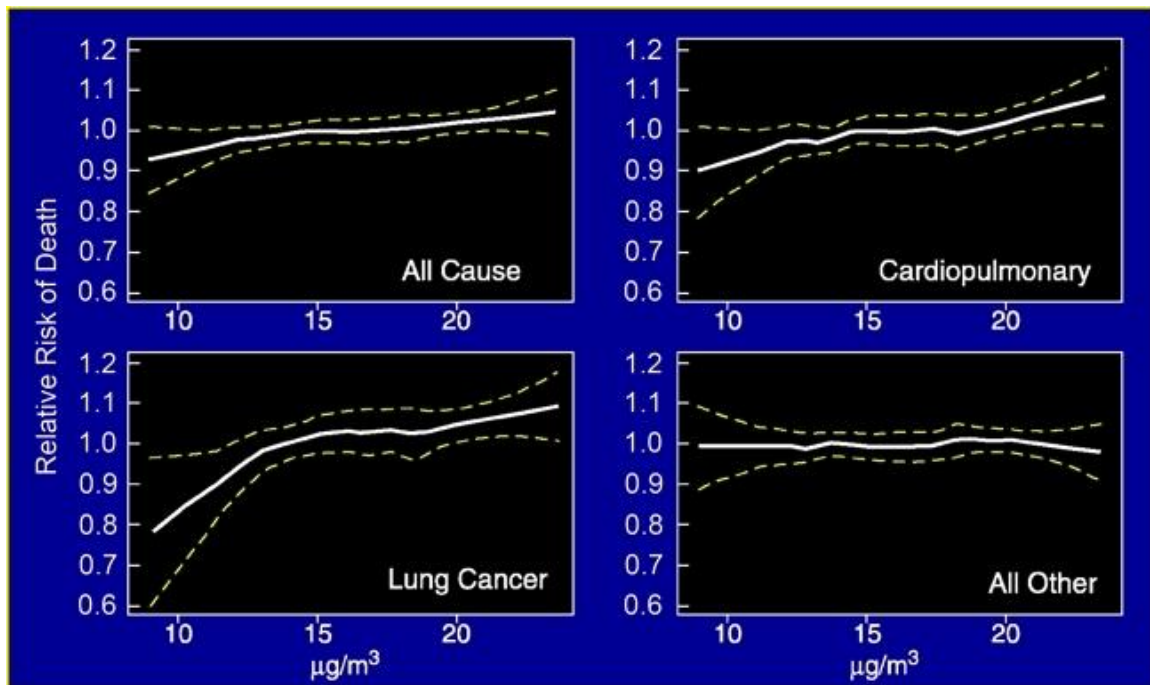


Figure 2. Cardiopulmonary and lung cancer mortality risks increase monotonically with exposure to long-term fine PM (adapted from: Pope, Burnett, Thun, Calle, Krewski, Ito, and Thurston, 2002)

Most studies evaluate whether rising air pollution levels worsen health, but it has also been shown that reducing pollution in the air can result in health benefits to the public. For

example, Pope (1989) conducted a compelling study clearly showing that, when pollution levels diminish, the health of the general public improves. He investigated a period during the winter of 1986-87 when the Geneva Steel mill in the Utah Valley shut down during a strike. The PM levels dropped dramatically in that strike-year winter, as opposed to the winters preceding and following when the steel mill was in operation. As shown in Figure 3 below, hospital admissions in the valley showed the same pattern as the PM air pollution, decreasing dramatically during the strike. As a control, Pope also examined the pollution and hospital admissions records in nearby Cache Valley, where the mill's pollution was not a factor, and no such drop in respiratory admissions was seen, showing that the drop in admissions in the Utah Valley was not due to some cause other than the reduction in the air pollution levels.

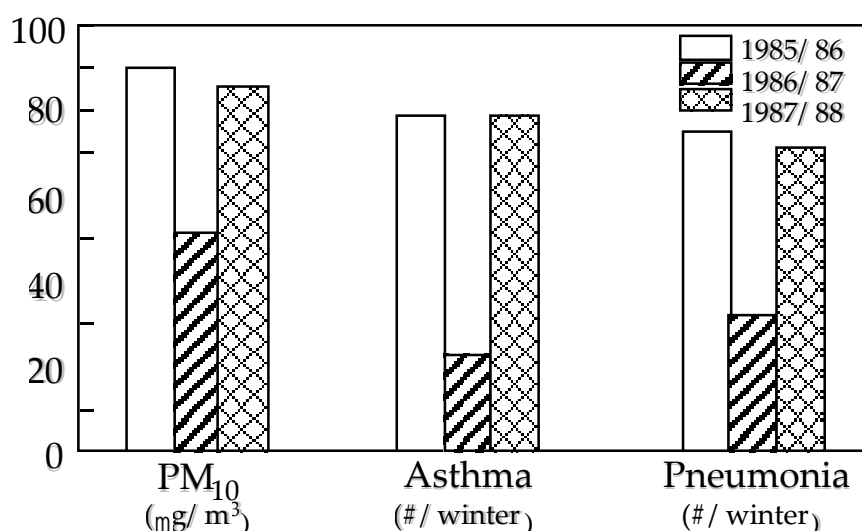


Figure 3. Decreasing PM pollution lowered the number of children's hospital admissions (Source: Pope, 1989).

These studies of the health improvements associated with decreases in PM<sub>2.5</sub> pollution show that any reduction can be expected to result in commensurate health benefits to the public at ambient levels, even where the National Ambient Air Quality Standards (NAAQS) are already met. A follow-up analysis of the Harvard Six-Cities Study cohort discussed earlier (Dockery et al., 1993), published in the March 15, 2006 issue of *The American Journal of Respiratory and Critical Care Medicine* (Laden et al., 2006), shows that mortality is decreased by lowering PM pollution. This study was carried out in the same six metropolitan areas evaluated in the earlier study, study participants' ages ranged from 25 to 74 at enrollment in 1974, and the scientists tracked both PM air pollution and mortality through 1998 in these populations. The Laden study

found that improved overall mortality (i.e., a risk ratio significantly below 1.0) was associated with decreased mean PM<sub>2.5</sub> over the study follow-up time (RR = 0.73; 95% per 10 µg/m<sup>3</sup>, CI = 0.57-0.95). In other words, for each decrease of 1 µg/m<sup>3</sup> of PM<sub>2.5</sub>, the overall death rate from causes such as cardiovascular disease, respiratory illness and lung cancer decreased by nearly 3% (i.e., 10 µg/m<sup>3</sup> x 2.7% = 27% decrease, or RR=0.73). The study also found that people who are exposed to lower pollution live longer than they would if they were exposed to higher pollution. Francine Laden, the study's lead author, explained its key findings in the March 21, 2006 issue of the New York Times: "For the most part, pollution levels are lower in this country than they were in the 70's and 80's," and "the message here is that if you continue to decrease them, you will save more lives."<sup>3</sup> "Consistently," Dr. Laden said, "in the cities where there was the most cleanup, there was also the greatest decrease in risk of death."

Although the Laden study took place in urbanized areas, the same principle can be applied in more rural areas where the air is more pristine: higher concentrations of PM<sub>2.5</sub>, even at very low overall levels, are associated with greater health risks. Indeed, a more recent Canadian national-level cohort study, Crouse et al. (2012), has shown that the adverse effects of air pollution extend down to very low levels of PM<sub>2.5</sub>. These investigators calculated hazard ratios (i.e., risk ratios) and 95% confidence intervals (CIs), adjusted for available individual-level and contextual covariates, finding a relative risk (or hazard ratio) of 1.30 (95% CI: 1.18, 1.43) for cardiovascular mortality from Cox proportional hazards survival models with spatial random-effects. Figure 4, taken from the Crouse study, illustrates the finding that mortality risk decreases with decreasing levels of PM<sub>2.5</sub>, even at ambient PM<sub>2.5</sub> levels down to 1 µg/m<sup>3</sup>.

---

<sup>3</sup> Nicholas Bakalar, *Cleaner Air Brings Drop in Death Rate*, New York Times (Mar. 21, 2006), pg F7.



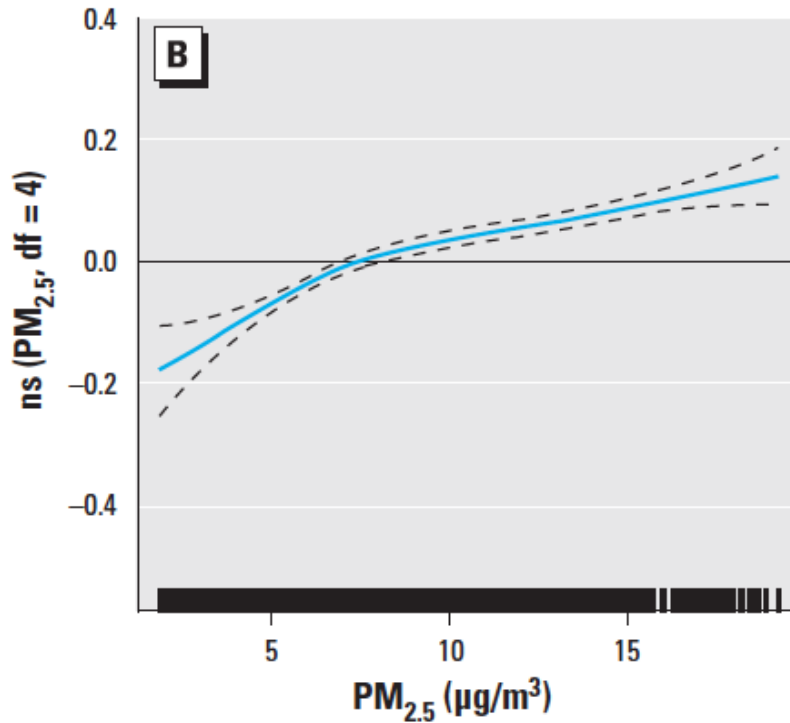


Figure 4. Cardiovascular Mortality Risk vs.  $PM_{2.5}$  exposure (solid line) and 95% CIs (dashed lines), showing increasing risk of death with increasing  $PM_{2.5}$ , even at very low ambient levels of  $PM_{2.5}$  air pollution (from Crouse et al., 2012).

Similarly, my own research has verified (as shown in Figure 5) that the association between  $PM_{2.5}$  air pollution and cardiovascular mortality extends down to very low  $PM_{2.5}$  concentration levels in the US as well (Thurston et al, 2016). Importantly, this study is highly regarded, as it was conducted in a well characterized and large US population: the National Institutes of Health – American Association of Retired Persons (NIH-AARP) Diet and Health Study cohort. The NIH-AARP Study was initiated when members of the AARP, aged 50 to 71 years from 6 US states (California, Florida, Louisiana, New Jersey, North Carolina, and Pennsylvania) and 2 metropolitan areas (Atlanta, Georgia, and Detroit, Michigan), responded to a mailed questionnaire in 1995 and 1996. The NIH-AARP cohort questionnaires elicited information on demographic and anthropometric characteristics, dietary intake, and numerous health-related variables (e.g., marital status, body mass index, education, race, smoking status, physical activity, and alcohol consumption), that was used to control for these factors in the air pollution mortality impact assessment.

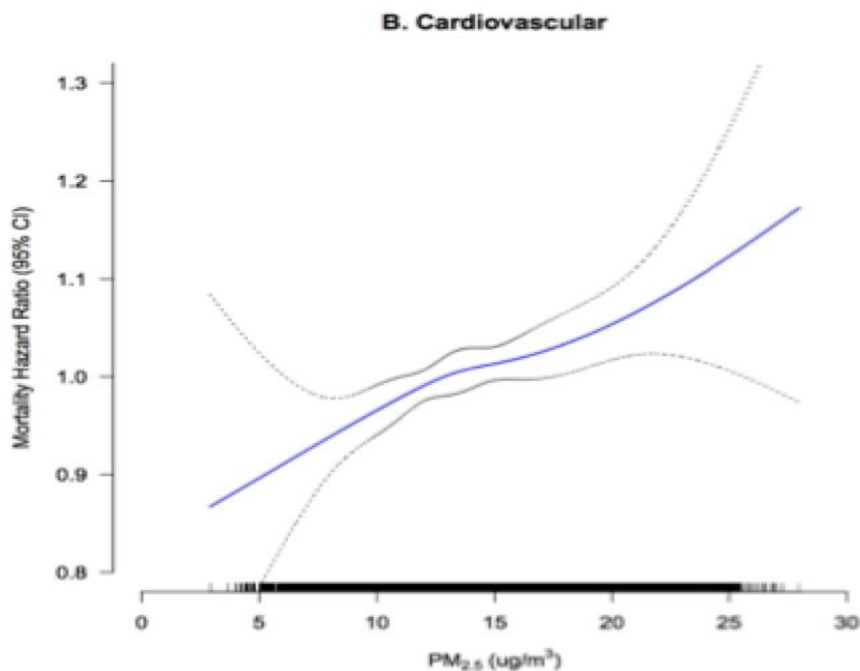


Figure 5. Mortality Risk from Cardiovascular Disease Increases with Rising PM<sub>2.5</sub> Exposure, Even Well Below the Present US Ambient Air Quality Standard annual limit for PM<sub>2.5</sub> (12 µg/m<sup>3</sup>). Thurston *et al.*, 2016a.

Although published too late to be considered by the U.S. EPA in their 2013 standard setting process, the Crouse *et al.* (2012) and Thurston *et al.* (2016a) results indicate that the mortality effects of PM<sub>2.5</sub> air pollution can occur at even lower ambient air pollution levels than shown by Pope *et al.* 2002, and even lower levels than that at which the U.S. EPA assumed the effects of PM<sub>2.5</sub> to exist in its 2012 Regulatory Impact Assessment for the revised annual PM NAAQS (U.S. EPA, 2012). These results confirm that, even in places where background air is relatively clean, small changes in air pollution concentration can have population health impacts.

As these studies show, there is no convincing evidence to date showing that there is any threshold below which such adverse effects of PM air pollution will not occur. This lack of a threshold of effects indicates that any reduction in air pollution can be expected to result in commensurate health benefits to the public at ambient levels.

With respect to PM<sub>2.5</sub> from power plants, my recent studies, and those by others, have also found that long-term exposure to combustion-related fine particulate air pollution is a particularly important environmental risk factor for cardiopulmonary and lung cancer mortality. Air pollutants associated with fossil fuel combustion (e.g., from oil, coal, and natural-gas-fired power plants) have well-documented adverse human health effects. The health impact is particularly high for particulate matter from fossil-fuel-burning facilities, such as coal burning, which has been associated with an ischemic heart disease mortality risk that is roughly five times that of the average for PM<sub>2.5</sub> particles in general (Thurston *et al.*, 2016b), and more damaging per  $\mu\text{g}/\text{m}^3$  than PM<sub>2.5</sub> from other common sources (Figure 6).

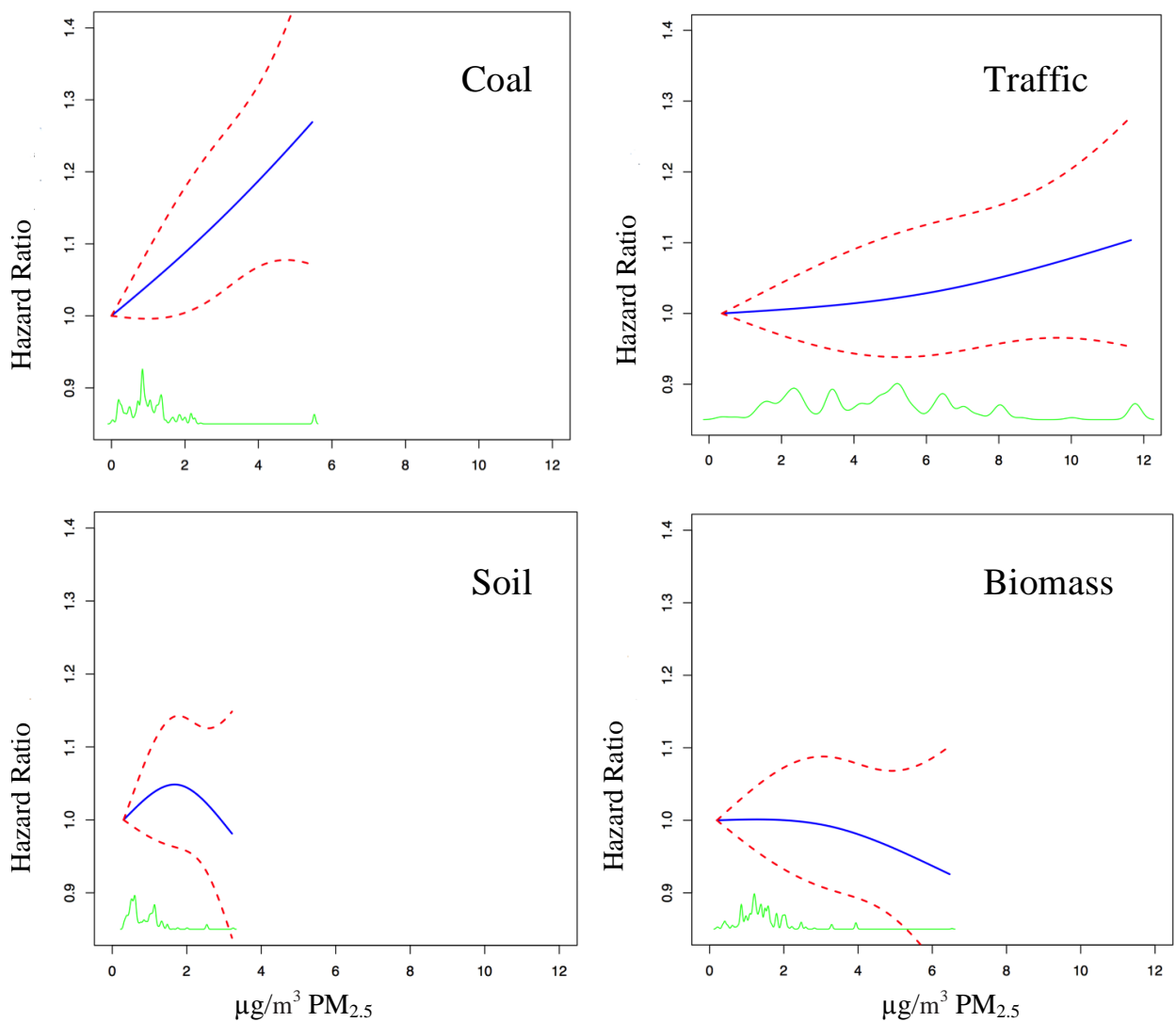


Figure 6. Concentration-response curve (solid lines) and 95% confidence intervals (dashed lines) for source-specific PM<sub>2.5</sub> mass in the US American Cancer Society (ACS) Cohort. (Thurston *et al.*, 2016b).

Thus, this new study, combined with past studies of US mortality and source-specific PM<sub>2.5</sub> (e.g., Ozkaynak and Thurston, 1987) indicate that the estimates provided here are conservative underestimates of the health benefits that would result from these proposed emissions controls, because the particles resulting from coal-combustion that will be eliminated are apparently far more toxic to human health than the average PM<sub>2.5</sub> mass, when considered on per µg/m<sup>3</sup> mass basis. Thus, by assuming in this report that the toxicity of the particles controlled are the of same toxicity as other particles (including, for example, wind blown soil), the estimates provided for the numbers and monetary valuations of the human health benefits of the BART controls are very conservative.

Sulfur oxide (SO<sub>x</sub>) exposures have also been associated with adverse health effects, in addition to leading to the secondary formation of PM<sub>2.5</sub> in the atmosphere. As concluded in the most recent U.S. EPA Risk and Exposure Assessment Report for SO<sub>2</sub> (EPA-452/R-09-007), research studies have provided scientific evidence that is sufficient to infer a similar relationship to also exist between short-term (e.g., daily) SO<sub>2</sub> exposure and adverse effects on the respiratory system. This finding of a causal relationship between SO<sub>2</sub> exposure and increased respiratory morbidity is supported by a large body of recent epidemiologic evidence, as well as by findings from human and animal experimental studies. These epidemiologic and experimental studies encompass a number of endpoints, including ED visits and hospitalizations, respiratory symptoms, airway hyperresponsiveness, and lung function (U.S. EPA, 2009).

Overall, there is a consistency between the epidemiologic study associations and experimental study results, supporting the conclusion that 1) there is indeed a cause-effect relationship between air pollution and negative health effects; and, 2) there is no known threshold below which no effects are experienced. Thus, reductions in air pollution result in commensurate improvements in public health, as provided in this report.

## METHODS

The U.S. EPA-approved Environmental Benefits Mapping and Analysis Program (BenMAP) is a Windows-based computer program that uses a Geographic Information System (GIS)-based method to estimate the health impacts and economic benefits occurring when populations experience changes in air quality (Abt Associates, 2010; U.S. EPA, 2015). Analysts have relied upon BenMAP to estimate the health impacts from air quality changes at the city and regional scale, both within and beyond the U.S. A copy of my BenMAP certification is attached as Exhibit T-2. Some of the purposes for which BenMAP has been used include the following:

- Generation of population/community level ambient pollution exposure maps;
- Comparison of benefits across multiple regulatory programs;
- Estimation of health impacts associated with exposure to existing air pollution concentrations;
- Estimation of health benefits of alternative ambient air quality standards.

BenMAP is primarily intended as a tool for estimating the health impacts, and associated economic values, associated with changes in ambient air pollution, as we apply it here. It accomplishes this by computing health impact functions that relate a change in the concentration of a pollutant with a change in the incidence of a health endpoint.

Inputs to health impact functions in this work included:

- The change in ambient air pollution level (as provided by Dr. Andrew Gray, of Gray Sky Solutions);
- Pollutant health effect estimates (based upon the scientific literature and present EPA practice);
- The exposed population, on a county basis, as provided in the BenMAP model; and,
- The baseline incidence rate of the health endpoint, on a county basis, as provided in the BenMAP model.

For example, in the case of a premature mortality health impact function, the BenMAP calculation can be represented, in a simplified form, as:

$$\text{Mortality Change} = (\text{Air Pollution Change}) * (\text{Air Pollution Mortality Effect Estimate}) * (\text{Mortality Incidence}) * (\text{Exposed Population})$$

- **Air Pollution Change.** The air quality change is calculated as the difference between the starting air pollution level, also called the baseline, and the air pollution level after

some change, such as that caused by a regulation. In the case of particulate matter, this is typically estimated in micrograms per meter cubed ( $\mu\text{g}/\text{m}^3$ ). In this analysis, these concentrations were provided on a county-by-county population weighted centroid basis.

• **Mortality Effect Estimate.** The mortality effect estimate is an estimate of the percentage change in mortality due to a one unit change in ambient air pollution. Epidemiological studies provide a good source for effect estimates.<sup>4</sup> In this Report, since the choice of mortality effect study has such a large influence on the valuation of the adverse health impacts avoided by applying EPA's proposed emission limits, I have presented (in Table 1) several BenMAP estimates for the mortality effect estimate, ranging from the lower end of estimates (Krewski et al., 2009), the higher end (Laden et al, 2007), and an intermediate estimate (Lepeule et. al, 2012). However, for breakdowns in adverse effects, in order to show the distribution of the effects benefits of EPA's proposed BART controls (e.g., between states, power plants, or metropolitan areas, as in Tables 2-4), I present results using only the low mortality effect estimate (Krewski et al, 2009) to simplify comparisons. This conservative (lowest benefit estimate) choice of the ACS Cohort studies to evaluate mortality benefits of EPA's proposed emissions reductions is consistent with the estimate used by EPA in the agency's prior nationwide analysis of the health benefits of Best Available Retrofit Technology determinations under the Regional Haze Regulations.<sup>5</sup> This choice of a specific mortality study does not affect the *relative* comparisons between states, power plants, etc., which would remain the same irrespective of mortality effect estimate choice. It should be noted that, if I instead used the higher mortality per  $\mu\text{g}/\text{m}^3$   $\text{PM}_{2.5}$  effect estimates from the other two studies in Table 1 (which are also scientifically supportable), the dollar valuation of health benefit estimates in Tables 2 thru 4 would be approximately 2.2 times higher using the Lepeul et al. study mortality effect estimate, or approximately 2.8 times higher using the Laden et al. study mortality effect estimate, across the board. However, the ratios of the *relative* impacts across categories would be unaffected by the choice of mortality

---

<sup>4</sup> When multiple epidemiological studies are available in BenMAP for a health outcome, multi-study pooled estimates have been made, following recent EPA practice (e.g., USEPA, 2012), and as delineated in Table 1.

<sup>5</sup> EPA, Regulatory Impact Analysis for Final Clean Air Visibility Rule of the Guidelines for Best Available Retrofit Technology (BART) Determinations Under the Regional Haze Regulations, EPA-452/R-05-004 (June 2005), *available at* [http://www.epa.gov/oar/visibility/pdfs/bart\\_ria\\_2005\\_6\\_15.pdf](http://www.epa.gov/oar/visibility/pdfs/bart_ria_2005_6_15.pdf).

impact study effect estimate.

- **Mortality Incidence.** The mortality incidence rate is an estimate of the average number of people that die in a given population over a given period of time, as provided in BenMAP. For example, the mortality incidence rate might be the probability that a person will die in a given year.
- **Exposed Population.** The exposed population is the number of people affected by the air pollution reductions required under EPA's BART proposal, based on Census data for each county within BenMAP.

For this work, population-weighted centroid PM<sub>2.5</sub> concentration impacts from each source in each county in the fourteen study states (Alabama, Arkansas, Colorado, Illinois, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Missouri, New Mexico, Oklahoma, Tennessee, and Texas) were determined by Andrew Gray for the (1) existing emissions; and (2) controlled emissions scenarios based on EPA's BART Proposal, respectively. *See* Gray, Visibility and Health Modeling, Technical Support Document to Comments of Conservation Organizations (May 5, 2017), EPA Docket No. EPA-R06-OAR-2016-0611. The arithmetic difference between the two scenario results were calculated (on a plant-by-plant and county-by-county basis) as the concentration reduction associated with the BART controls, for each plant and county in the study area modeled by Dr. Gray. As outlined in more detail by Dr. Gray in his report, CALPUFF air dispersion modeling was used to estimate long-term (three-year modeled average) fine PM concentrations at the 837 county receptors within the CALPUFF modeling domain for both the 2001-2004 emissions baseline and for the proposed BART control emission scenario. Postprocessing of the CALPUFF results was performed to sum the modeled sulfate, nitrate, and PM<sub>2.5</sub> at each receptor in order to estimate the total fine PM concentration at each receptor, as contributed by each source, under both baseline and the control scenarios.] These values were entered into BenMAP to estimate the health benefits, and their dollar valuations, associated with EPA's BART controls on a county-by-county basis for each of nine electrical generating power plant sources. The results for the nine power plants proposed for BART control by the EPA were then summed on a cumulative basis (Table 1, with both numbers and valuations, by cause). Furthermore, to allow an indication of the plant-by-plant and spatial distribution of the health and economic benefits from EPA's BART proposal, the health benefit valuations (summed over all causes, as dollars) were also calculated on a state-by-state (Table 2),

plant-by-plant (Table 3), and metropolitan area-specific (Table 4) basis, providing insight into the relative health impacts by specific sources to specific areas benefitting from the pollution control FIP. The Appendix to this report provides a complete breakdown of the annual health benefits associated with the application of EPA's proposed emission limits by individual power plant and health effect.

## RESULTS

Using the above-described EPA BenMAP methodology-based analysis, I conservatively estimate the total public health-based economic benefits associated with reductions in ambient PM<sub>2.5</sub> concentrations as a result of applying EPA's BART control determinations to the 18 individual Texas EGUs (as displayed in Table 1 for all nine electric generating stations, and all states considered, combined) to be between roughly \$6.7 billion and nearly \$17 billion per year, overall, primarily depending on the epidemiological study used to determine the PM<sub>2.5</sub> mortality impacts (*i.e.*, Krewski et al. (low), Lapieule et al. (mid), or Laden et al. (high)). These impacts reflect the range of potential mortality effects associated with the proposed EPA FIP, depending on the particular study used to estimate the effect per  $\mu\text{g}/\text{m}^3$  PM<sub>2.5</sub> exposure. Further breakdowns of Table 1's estimates using only the Krewski et al. study (*i.e.*, the low mortality effect estimate) to estimate total mortality impacts are provided in Tables 2 through 4 of this report: *i*) by electric generating power plant (*i.e.*, for each of the nine power plants over all areas modeled by Dr. Gray); *ii*) for all power plant generating unit impacts collectively by State of impact (*i.e.*, in Alabama, Arkansas, Colorado, Illinois, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Missouri, New Mexico, Oklahoma, Tennessee, and Texas); and, *iii*) for all power plant generating unit impacts collectively by major metropolitan impact area.

As seen in Table 1, the numbers of adverse health events avoided by application of EPA's proposed SO<sub>2</sub> emission limits are dominated by the morbidity events, such as respiratory symptoms, restricted activity days, and work loss days. In contrast, the dollar valuation of the adverse health events are largely dominated, as would be expected, by the more severe health outcomes, including myocardial infarctions (heart attacks), chronic bronchitis, and (especially) deaths. As shown in Table 2, on a state-by-state basis, the largest health benefits go to the state in which the power plants are operating (Texas), but, because this pollution can be carried so far downwind, nearly one half of the health benefits would accrue in other (downwind) states. On a power plant basis (Table 3), it is seen that large health benefits are derived from controlling each



the nine plants EPA proposes to regulate under this FIP, with the greatest benefits being derived from controlling the Big Brown, Martin Lake, and Monticello plants. Table 4 makes clear that urban areas in Texas would receive the largest health benefits from the proposed BART emission controls at these generating stations, but that the benefits stretch long distances downwind, with still very large health benefits in cities as far away as Illinois.

Table 1. Annual Multi-State Human Health Effects and Monetary Valuations Associated With the PM<sub>2.5</sub> Air Pollution Avoided by Applying EPA's Proposed BART Controls for Texas Sources

<b>Health Endpoint</b>	<b>Expected Number Per Year Avoided*</b>	<b>Total Dollar Valuation (2010\$)**</b>
Respiratory Hospital Admissions (Kloog et al., 2012; Zanobetti et al., 2009)	125 <sup>a</sup>	\$3,966,000
Cardiovascular Hospital Admissions (Bell et al., 2008; Peng et al., 2008; Peng et al., 2009; Zanobetti et al., 2009)	125 <sup>a</sup>	\$4,733,000
Acute Bronchitis (Dockery et al., 1996)	1317	\$633,000
Acute Myocardial Infarction, Nonfatal (Pope et al., 2006; Sullivan et al., 2005; Zanobetti et al., 2009; Zanobetti & Schwartz, 2006)	80 <sup>b</sup>	\$10,094,000 <sup>a</sup>
Emergency Room Visits (Glad et al., 2012; Mar et al., 2010; Slaughter et al., 2005)	381 <sup>b</sup>	\$162,000 <sup>a</sup>
Asthma Exacerbation Symptoms (Mar et al., 2004; Ostro et al., 2001)	24,818 <sup>b</sup>	\$1,434,000
Upper Respiratory Symptoms (Pope et al., 1991)	23,915	\$795,000
Lower Respiratory Symptoms (Schwartz and Neas, 2000)	16,767	\$352,000
Minor Restricted Activity Days (Ostro & Rothschild, 1989)	625,525	\$42,754,000
Work Days Lost (Ostro et al., 1987)	105,853	\$15,803,000
Chronic Bronchitis (Abbey et al., 1995)	521	\$147,152,000 <sup>c</sup>
Mortality, All Causes (Krewski et. al, 2009)	678	\$6,518,235,000
Mortality, All Causes (Lepeule et. al, 2012)	1541	\$14,823,929,000
Mortality, All Causes (Laden et al., 2007)	1760	\$16,921,843,000

\* Rounded to nearest whole number.

\*\* Rounded to nearest \$1000.

a Pooled effects with averaging approach, as per EPA BenMAP default setting.

b Pooled effects with random/fixed effects approach, as per EPA BenMAP default setting.

c Pooled effects with summation approach, as per EPA BenMAP default setting.

Table 2. State-By State Total Valuation of Annual Health Benefits of EPA Proposed BART Controls Applied to the Nine Power Plants At Issue\* (Applying Krewski et al., 2009 for mortality)

<b>State</b>	<b>Total Dollar Valuation (2010\$)**</b>
AL	\$57,080,000
AR	\$522,356,000
CO	\$5,564,000
IL	\$46,516,000
IN	\$12,432,000
KS	\$152,556,000
KY	\$35,415,000
LA	\$492,830,000
MS	\$241,108,000
MO	\$324,832,000
NM	\$38,796,000
OK	\$771,304,000
TN	\$149,283,000
TX	\$3,896,042,000
<b>Total</b>	<b>\$6,746,113,000</b>

\* Big Brown, Coletto Creek, Fayette, Harrington, JT Deely, Martin Lake, Monticello, Parish, and Welsh.

\*\* Rounded to nearest \$1000.

Table 3. Plant-By Plant Total Valuation of Annual Health Benefits of EPA Proposed BART Controls (Applying Krewski et al., 2009 for mortality)

<b>Electric Generating Station</b>	<b>Total Dollar Valuation (2010\$)*</b>
Big Brown	\$1,617,952,000
Coletto Creek	\$261,901,000
Fayette	\$495,331,000
Harrington	\$153,627,000
JT Deely	\$508,409,021
Martin Lake	\$1,135,234,000
Monticello	\$1,553,080,000
Parish	\$816,736,000
Welsh	\$203,842,000
<b>Total</b>	<b>\$6,746,113,000</b>

\* Rounded to nearest \$1000.

Table 4. Total Valuation of Annual Health Benefits of EPA Proposed BART Controls for Selected Metropolitan Areas (Applying Krewski et al., 2009 for mortality)

<b>City (Counties)</b>	<b>Total Dollar Valuation All 9 Plants (2010\$)*</b>
<b>Austin, TX</b> (Hayes, Travis, Williamson)	\$182,849,000
<b>Dallas, TX</b> (Colin, Dallas, Ellis, Rockwall)	\$623,296,000
<b>Ft. Worth, TX</b> (Johnson, Tarrant)	\$369,004,000
<b>Houston, TX</b> (Brazoria, Chambers, Fort Bend, Galveston, Harris)	\$606,467,000
<b>San Antonio, TX</b> (Bexar, Comal, Guadalupe)	\$325,461,000
<b>Little Rock, AR</b> (Lonoke, Pulaski, Saline)	\$90,863,000
<b>Kansas City, KS</b> (Johnson, Wyandotte, Cass, Clay, Jackson, Platte)	\$6,670,000
<b>New Orleans, LA</b> (Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John the Baptist)	\$56,435,000
<b>Jackson, MS</b> (Hinds, Madison, Rankin)	\$39,942,000
<b>Oklahoma City, OK</b> (Canadian, Cleveland, Logan, Oklahoma)	\$185,587,000
<b>Tulsa, OK</b> (Creek, Osage, Tulsa, Wagoner)	\$156,516,000
<b>Nashville, TN</b> (Davidson, Fsumner, Williamson, Wilson)	\$2,911,000

\* Rounded to nearest \$1000.

In addition to reflecting a conservative (i.e., low) mortality effects estimate, these overall health impact counts and their dollar valuations are conservative estimates of the health benefits after the application of the proposed BART controls at the affected power plant units for a number of reasons, including: (a) additional health impacts not modeled in this analysis attributable to co-reductions in other pollutants (*e.g.*, gaseous SO<sub>2</sub>) are not included here; (b) consideration of health impacts only for the ages of the exposed populations that were considered in the epidemiological studies on which these analyses were based; (c) there are either no health impact studies or no dollar valuation available for many health outcomes thought to be adversely affected by air pollution, such as effects of air pollution on birth outcomes; and (d) in Tables 2-4 we have applied the low estimate of the mortality benefits (whereas applying the other two studies noted would roughly double or triple the estimates in Tables 2-4, respectively). Thus, while all air pollution control costs associated with application of EPA's proposed BART controls can be estimated, these estimates of the health benefits and their monetary valuations are only available for a subset of likely health impacts from air pollution. This, in addition to prior discussion of the likely higher toxicity of particles from coal-fired power plants, means that my analysis is very conservative, and likely underestimates the health and monetary benefits of applying EPA's BART emission limits to the affected Texas power plant units.

## CONCLUSIONS

Even applying conservative estimates and assumptions, the health benefits and valuations derived from the application of EPA's BART control determination to the 9 Texas electric generating power plants at issue are substantial. Moreover, these benefits and their valuations accrue each and every year those controls are operational. Accordingly, ten years from the compliance date, the health benefits and valuations of proposed controls will be roughly ten times the values provided in Tables 1 through 4, before adjustment for a discount rate and future affected population growth, as appropriate. Similarly, these benefits and their valuations are lost (not accrued) each and every year that application of the EPA's BART controls are delayed. Thus, even a delay of just a few months carries the risk of substantial, and irreparable, harm to public health. As demonstrated above, those public health impacts have an associated and quantifiable adverse economic impact. Thus, it is reasonable to conclude that any delay implementing EPA's Regional Haze BART controls for Texas will only exacerbate the substantial, and irreparable, harms to public health that have already been incurred to date by the operation of these electric generating units.

## LITERATURE CITED

Abbey, D.E., B.E. Ostro, F. Petersen and R.J. Burchette. (1995) Chronic Respiratory Symptoms Associated with Estimated Long-Term Ambient Concentrations of Fine Particulates Less Than 2.5 Microns in Aerodynamic Diameter (PM<sub>2.5</sub>) and Other Air Pollutants. *J Expo Anal Environ Epidemiol*. 1995 Apr-Jun;5(2):137-59.

Abt Associates (2010). BenMAP Environmental Benefits Mapping and Analysis Program User's Manual. Prepared for the U.S. EPA Office of Air Quality Planning and Standards, RTP, NC.

Bell, M. L., K. Ebisu, et al. (2008). "Seasonal and Regional Short-term Effects of Fine Particles on Hospital Admissions in 202 US Counties, 1999-2005." *American Journal of Epidemiology* 168 (11): 1301-1310.

Coffin, D. L., and D. E. Gardner. 1972. Interaction of biological agents and chemical air pollutants. *Ann. Occup. Hyg.* 15:219-35.

Crouse DL, Peters PA, van Donkelaar A, Goldberg MS, Villeneuve PJ, Brion O, Khan S, Atari DO, Jerrett M, Pope CA, Brauer M, Brook JR, Martin RV, Stieb D, Burnett RT. (2012). Risk of Nonaccidental and Cardiovascular Mortality in Relation to Long-term Exposure to Low Concentrations of Fine Particulate Matter: A Canadian National Level Cohort Study. *Environ Health Perspect*. 2012 May;120(5):708-14.

Dockery DW, Pope CA 3rd, Xu X, Spengler JD, Ware JH, Fay ME, Ferris BG Jr, Speizer FE. (1993). An association between air pollution and mortality in six U.S. cities. *N Engl J Med*. 1993 Dec 9;329(24):1753-9.

- Dockery, D.W., J. Cunningham, A.I. Damokosh, L.M. Neas, J.D. Spengler, P. Koutrakis, J.H. Ware, M. Raizenne and F.E. Speizer. 1996. Health Effects of Acid Aerosols On North American Children - Respiratory Symptoms. *Environ Health Perspect.* 1996 May;104(5):500-5.
- Glad JA, Brink LL, Talbott EO, Lee PC, Xu X, Saul M, Rager J. (2012) The relationship of ambient ozone and PM(2.5) levels and asthma emergency department visits: possible influence of gender and ethnicity. *Arch Environ Occup Health.* 2012;67(2):103-8.
- Godleski, J.J.; Sioutas, C.; Katler, M.; Catalano, P.; and Koutrakis, P. (1996) Death from inhalation of concentrated ambient air particles in animal models of pulmonary disease. *Proceedings of the Second Colloquium on Particulate Air Pollution and Human Health*, May 1-3, 1996, Park City, Utah.
- Godleski, JJ. (2000) Mechanisms of Morbidity and Mortality from Exposure to Ambient Air Particles. *Health Effects Institute Research Report 91*, 2000. Health Effects Institute. Cambridge, MA.
- Gold DR, Litonjua A, Schwartz J, Lovett E, Larson A, Nearing B, Allen G, Verrier M, Cherry R, Verrier R. (2000). Ambient pollution and heart rate variability. *Circulation.* Mar 21;101(11):1267-73.
- Health Effects Institute (HEI) (2003). Revised Analyses of Time-Series Studies of Air Pollution and Health. Special Report. Health Effects Institute, Boston MA.
- Kloog I, Nordio F, Zanobetti A, Coull BA, Koutrakis P, Schwartz JD. (2014). Short term effects of particle exposure on hospital admissions in the Mid-Atlantic states: a population estimate. *PLoS One.* 2014 Feb 7;9(2):e88578. doi: 10.1371/journal.pone.0088578. eCollection 2014.
- Krewski, D. et al. (2000). Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality: Investigators' Report Part I: Replication and Validation. 2000. Health Effects Institute, Cambridge, MA.
- Krewski D., Jerrett M, Burnett R, Ma R, Hughes E, Shi Y, Turner MC, Pope CA III, Thurston G, Calle E, and Thun MJ (2009). Extended Follow-Up and Spatial analysis of the American Cancer Society Linking Particulate Air Pollution and Mortality. Health Effects Institute, Cambridge MA
- Laden F, Neas LM, Dockery DW, Schwartz J. (2000). Association of fine particulate matter from different sources with daily mortality in six U.S. cities. *Environ Health Perspect.* 2000 Oct;108(10):941-7.
- Laden F, Schwartz J, Speizer FE, Dockery DW. Reduction in Fine Particulate Air Pollution and Mortality: Extended Follow-up of the Harvard Six Cities Study. *Am J Respir Crit Care Med.* 2006 Mar 15;173(6):667-72.
- Lamm SH, Hall TA, Engel A, Rueter FH, White LD. (1994). PM<sub>10</sub> Particulates: Are they the major determinant of pediatric respiratory admissions in Utah County, Utah (1985-1989) *Ann. Occup. Hyg.* 38: 969-972, 1994.
- Lay JC, Bennett WD, Ghio AJ, Bromberg PA, Costa DL, Kim CS, Koren HS, Devlin RB. (1999). Cellular and biochemical response of the human lung after intrapulmonary instillation of ferric oxide particles. *Am J Respir Cell Mol Biol.* 1999 Apr;20(4):631-42.
- Lepeule J, Laden F, Dockery D, Schwartz J. (2012). Chronic exposure to fine particles and mortality: an extended follow-up of the Harvard Six Cities study from 1974 to 2009. *Environ Health Perspect.* 2012 Jul;120(7):965-70.
- Mar TF, Koenig JQ, and Primomo J. (2010). Associations between asthma emergency visits and particulate matter sources, including diesel emissions from stationary generators in Tacoma, Washington. *Inhal Toxicol.* Vol. 22 (6): 445-8.

Ministry of Health of Great Britain, (1954) Report on Pub. Health and Med. Subjects: Mortality and Morbidity During the London Fog of December 1952 (Her Majesty's Stationary Office, London).

Moolgavkar, S. H. 2000a. Air Pollution and Hospital Admissions for Chronic Obstructive Pulmonary Disease in Three Metropolitan Areas in the United States. *Inhalation Toxicology*. Vol. 12 (Supplement 4): 75-90.

Moolgavkar, S. H. 2000b. Air pollution and hospital admissions for diseases of the circulatory system in three U.S. metropolitan areas. *J Air Waste Manag Assoc*. Vol. 50 (7): 1199-206.

National Research Council (NRC) (1978) *Sulfur oxides*. Committee on Sulfur Oxides, Board on Toxicology and Environmental Health Hazards, Assembly of Life Sciences. Washington, D.C

National Research Council (NRC). (1977). *Airborne Particles*, National Academy of Sciences. Subcommittee on Airborne Particles, Committee on Medical and Biological Effects of Environmental Pollutants. University Park Press, Baltimore.

New York Times (2006). "Cleaner Air Brings Drop in Death Rate." March 21, 2006, pg F7.

Ostro, B.D. (1987). Air Pollution and Morbidity Revisited: A Specification Test. *Journal of Environmental Economics and Management*. 14: p. 87-98.

Ostro B, and Rothschild S. (1989). Air Pollution and Acute Respiratory Morbidity: An Observational Study of Multiple Pollutants, *Environmental Research* 50, 238-247.

Ostro, B, Lipsett M, Mann J, Braxton-Owens H, and White M. (2001). Air pollution and exacerbation of asthma in African-American children in Los Angeles. *Epidemiology*. Vol. 12 (2): 200-8.

Ozkaynak H, Thurston GD. (1987). Associations between 1980 U.S. mortality rates and alternative measures of airborne particle concentration. *Risk Anal*. 1987 Dec;7(4):449-61.

Peng, R. D., H. H. Chang, et al. (2008). "Coarse particulate matter air pollution and hospital admissions for cardiovascular and respiratory diseases among Medicare patients." *JAMA* 299 (18): 2172-9.

Peng, R. D., M. L. Bell, et al. (2009). "Emergency admissions for cardiovascular and respiratory diseases and the chemical composition of fine particle air pollution." *Environ Health Perspect* 117 (6): 957-63.

Peters A, Dockery DW, Muller JE, Mittleman MA. (2001). Increased particulate air pollution and the triggering of myocardial infarction. *Circulation*. 2001 Jun 12;103(23):2810-5.

Pope CA 3rd. (1989). Respiratory disease associated with community air pollution and a steel mill, Utah Valley. *Am J Public Health*. 1989 May;79(5):623-8.

Pope, C. A., D. W. Dockery, J. D. Spengler and M. E. Raizenne. 1991. Respiratory Health and PM10 Pollution - a Daily Time Series Analysis. *American Review of Respiratory Disease*. Vol. 144 (3): 668-674.

Pope CA 3rd, Thun MJ, Namboodiri MM, Dockery DW, Evans JS, Speizer FE, Heath CW Jr. (1995). Particulate air pollution as a predictor of mortality in a prospective study of U.S. adults. *Am J Respir Crit Care Med*. 1995 Mar; 151(3 Pt 1): 669-74.

Pope, CA (1996) Particulate pollution and health: A review of the Utah Valley Experience. *J. Expos. And Env. Epi*. Vol 6: 23-34.

Pope CA 3rd, Verrier RL, Lovett EG, Larson AC, Raizenne ME, Kanner RE, Schwartz J, Villegas GM, Gold DR, Dockery DW. (1999). Heart rate variability associated with particulate air pollution. *Am Heart J*. 1999 Nov; 138(5 Pt 1):890-9.

Pope, C.A. III, Burnett, R.T., Thun, M.J., Calle, E.E., Krewski, D., Ito, K., and Thurston, G.D. Lung cancer, cardiopulmonary mortality and long-term exposure to fine particulate air pollution. *J. Am. Med. Assoc. (JAMA)* 287(9):1132-1141 (2002).

Pope, C. A., 3rd, J. B. Muhlestein, et al. (2006). "Ischemic heart disease events triggered by short-term exposure to fine particulate air pollution." *Circulation* 114 (23): 2443-8.

Rodriguez, C, Tonkin R, Heyworth J, Kusel M, De Klerk N, Sly P, Franklin P, Runnion T, Blockley A, Landau L & A Hinwood (2007), The relationship between outdoor air quality and respiratory symptoms in young children, *International Journal of Environmental Health Research*, 17:5, 351-360.

Schwartz, J. and L.M. Neas. 2000. Fine particles are more strongly associated than coarse particles with acute respiratory health effects in schoolchildren. *Epidemiology*. Vol. 11 (1): 6-10.

Slaughter, J. C., E. Kim, et al. (2005). "Association between particulate matter and emergency room visits, hospital admissions and mortality in Spokane, Washington." *J Expo Anal Environ Epidemiol* 15(2): 153-9.

State of California (2003). Final Regulation Order for the Rulemaking To Consider Amendments to Regulations for the State Ambient Air Quality Standards for Suspended Particulate Matter and Sulfates. Sacramento, Ca.

Sullivan, J., L. Sheppard, et al. (2005). "Relation between short-term fine-particulate matter exposure and onset of myocardial infarction." *Epidemiology* 16 (1): 41-8

Thurston GD, Ito K, Kinney PL, Lippmann M. A multi-year study of air pollution and respiratory hospital admissions in three New York State metropolitan areas: results for 1988 and 1989 summers. *J Expo Anal Environ Epidemiol*. 1992 Oct-Dec;2(4):429-50.

Thurston GD, Lippmann M, Scott MB, Fine JM. (1997). Summertime haze air pollution and children with asthma. *Am J Respir Crit Care Med*. 1997 Feb;155(2):654-60.

Thurston GD, Ito K, Mar T, Christensen WF, Eatough DJ, Henry RC, Kim E, Laden F, Lall R, Larson TV, Liu H, Neas L, Pinto J, Stölzel M, Suh H, and Hopke, PK. (2005). Workshop on the Source Apportionment of Particulate Matter Health Effects: Inter-Comparison of Results and Implications. *Env. Hlth. Perspect.*: 113(12):1768-74.

Thurston GD, Ahn J, Cromar K, Shao Y, Reynolds H, Jerrett M, Lim C, Shanley R, Park Y, Hayes RB. (2016a). Ambient Particulate Matter Air Pollution Exposure and Mortality in the NIH-AARP Diet and Health Cohort. *Env. Health Persp*. 2016 Apr;124(4):484-90. doi: 10.1289/ehp.1509676.

Thurston GD, Burnett RT, Turner MC, Shi Y, Krewski D, Lall R, Ito K, Jerrett M, Gapstur SM, Diver WR, Pope CA. (2016b). Ischemic Heart Disease Mortality and Long-Term Exposure to Source-Related Components of U.S. Fine Particle Air Pollution. *Environ Health Perspect*. 2016 Jun;124(6):785-94. doi: 10.1289/ehp.1509777.

U.S. EPA (2001). AIR DATA. National Emissions Trends (NET) Database: <http://www.epa.gov/air/data/net.html>

U.S. EPA. (2004). Fourth External Review Draft of Air Quality Criteria for Particulate Matter (June, 2003). EPA/600/P-99/002aD, Office of Research and Development, Washington, DC.

U.S. EPA. (2004). Air Quality Criteria for Particulate Matter (October, 2004). Final. EPA/600/P-99/002aF, Office of Research and Development, Washington, DC.

U.S. EPA, (2005). Regulatory Impact Analysis for the Final Clean Air Visibility Rule or the Guidelines for Best Available Retrofit Technology (BART) Determinations Under the Regional Haze Regulations, Research Triangle Park, NC, available at: [http://www.epa.gov/oar/visibility/pdfs/bart\\_ria\\_2005\\_6\\_15.pdf](http://www.epa.gov/oar/visibility/pdfs/bart_ria_2005_6_15.pdf)

U.S. Environmental Protection Agency (2009a). Integrated Science Assessment for Particulate Matter (Final Report), Washington, DC, EPA/600/R-08/139F, at 2-10, 2-11 (emphasis in original), available at <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=216546>

U.S. Environmental Protection Agency (2009b). Risk and Exposure Assessment to Support the Review of the SO<sub>2</sub> Primary National Ambient Air Quality Standards. OAQPS. EPA-452/R-09-007. RTP, NC

U.S. Environmental Protection Agency (2012). Regulatory Impact Analysis for the Proposed Revisions to the National Ambient Air Quality Standards for Particulate Matter, OAQPS, EPA-452/R-12-003. RTP, NC.

U.S. EPA. (2015). BenMAP Environmental Benefits Mapping and Analysis Program – Community Edition: User’s Manual Appendices. Prepared by RTI International. OAQPS, RTP, NC. <http://www2.epa.gov/benmap/benmap-community-edition>

Veronesi B, Oortgiesen M, Carter JD, Devlin RB. (1999). Particulate matter initiates inflammatory cytokine release by activation of capsaicin and acid receptors in a human bronchial epithelial cell line. *Toxicol Appl Pharmacol.* 1999 Jan 1;154(1):106-15.

Wilson WE, Mage DT, Grant LD. (2000). Estimating separately personal exposure to ambient and nonambient particulate matter for epidemiology and risk assessment: why and how. *J Air Waste Manag. Assoc.* Jul;50(7):1167-83.

Woodruff, T. J., J. Grillo and K. C. Schoendorf. 1997. The relationship between selected causes of postneonatal infant mortality and particulate air pollution in the United States. *Environmental Health Perspectives.* Vol. 105 (6): 608-612.

Zanobetti A, Schwartz J. Air pollution and emergency admissions in Boston, MA.. *J Epidemiol Community Health.* 2006 Oct;60(10):890-5.

Zanobetti, A., M. Franklin and J. Schwartz. 2009. Fine particulate air pollution and its components in association with cause-specific emergency admissions. *Environmental Health* Vol. 8: 58-60.

DATED: May 4, 2017, at Chester, New York.

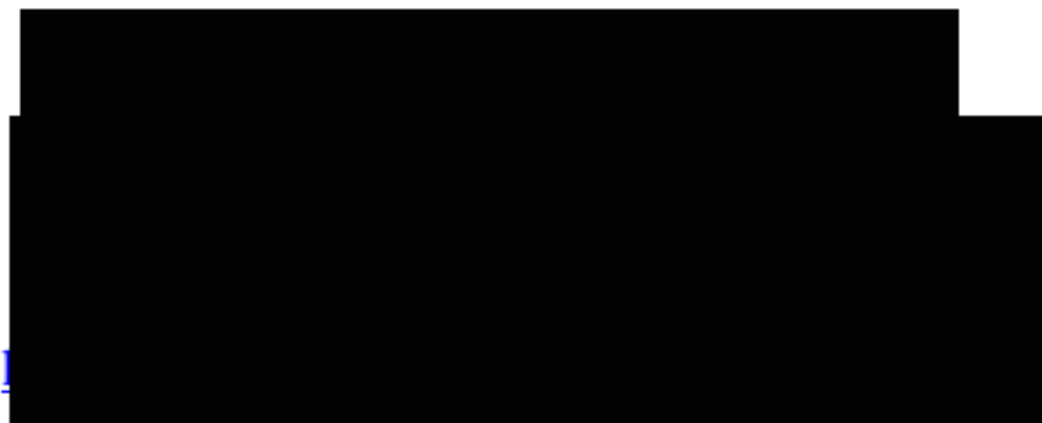
A handwritten signature in black ink, appearing to read "George D. Thurston, S.D.", written over a horizontal line.

DR. GEORGE D. THURSTON



## Curriculum Vitae

**GEORGE D. THURSTON**



### Education

Degree	Field	Institution
Diploma	Academic	Barrington High School, RI
Sc.B. (Honors)	Environmental Engineering	Brown University
A.B.	Environmental Studies	Brown University
S.M.	Environmental Health Sciences	Harvard Univ. Schl. of Public Health
Sc.D.	Environmental Health Sciences	Harvard Univ. Schl. of Public Health

### Postdoctoral Training

Specialty	Mentor	Place of Training
Environ. Epidemiology	Dr. H. Ozkaynak	Harvard Univ., Kennedy Schl. of Gov., Camb., MA

**Internships and Residencies** N/A

**Clinical and Research Fellowships** N/A

**Licensure and Certification:** Environmental Benefits Mapping and Analysis Program - Community Edition (BenMAP-CE) Training Certification (August 2014).

### Academic Appointments

1987-1993	Assistant Professor, Dept. of Environmental Medicine, New York University School of Medicine, New York City, NY.
1993-2006	Associate Professor (Tenured), Dept. of Environmental Medicine, New York University School of Medicine, New York City, NY.
2007-present	Professor (Tenured), Dept. of Environmental Medicine, New York University School of Medicine, New York City, NY.
2007-present	Affiliated Faculty, Environmental Studies Program, College of Arts and Sciences, New York University, New York City, NY.
2012-present	Affiliated Faculty, Marron Institute on Cities and the Urban Environment, New York University, New York City, NY
2012-present	Faculty Mentoring Champion, Dept. of Environmental Medicine, New York University School of Medicine, New York City, NY.

**Hospital Appointments:** N/A

### Other Professional Positions and Visiting Appointments:

Oak Ridge Institute for Science and Education (ORISE) Fellow (2008-2010)

## Major Administrative Responsibilities

<i>Year</i>	<i>Title, Place of Responsibility</i>
1995-2004	Director, Community Outreach and Environmental Education Program, NYU-NIEHS Center of Excellence, Nelson Inst. of Environ. Med., NYU School of Medicine, Tuxedo, NY
2002-2012	Deputy Director, NYU Particulate Matter Research Center, Nelson Inst. of Environmental Medicine, NYU School of Medicine, Tuxedo, NY
2007-2008	Director, Environmental Epidemiology Core, NYU-NIEHS Center of Excellence, Department of Environmental Medicine, Tuxedo, NY
2010-2015	Co-Leader, Metals Research Focus Group, NYU-NIEHS Center of Excellence, Department of Environmental Medicine, Tuxedo, NY.
2012-2016	Chair, Appointments and Promotions Committee, Department of Environmental Medicine, NYU School of Medicine.
2014-2016	Co-Chair, Environmental Health Research Affinity Group, NYU Global Institute of Public Health (GIPH), New York University, Washington Square.
2012-present	Director, Program in Exposure Assessment and Human Health Effects, Department of Environmental Medicine, NYU School of Medicine.

## Teaching Experience

<i>Year</i>	<i>Name of course</i>		<i>Type of Teaching</i>
1984-1994	Air Poll. Transport Modeling	(G48.2048)	Course Director
2006-present	Climate, Air Pollution, & Health	(G48.1010)	Course Director
1986-present	Aerosol Science	(G48.2033)	Course Director
1984-2010	Environmental Contamination	(G48.2305)	Lecturer
1984-present	Environ. Hygiene Measurements	(G48.2035)	Lecturer/Lab
1990-1998	Environmental Toxicology	(G48.1006)	Lecturer
1993-1995	Environmental Epidemiology I	(G48.2039)	Lecturer
2001-2003	NYU Summer Institute, Wagner School		Lecturer
2006-present	Environmental Epidemiology I	(G48.2039)	Lecturer
2006-present	Science, Health & Envir. Journalism	(G54.1017.0)	Lecturer
2009-2011	Global Environmental Health	(U10.2153.1)	Course Director
2009-2012	Global Issues in Environ. Health	(G48.1011)	Course Director
2009-present	Earth Systems Science (undergrad)	(V36.0200)	Lecturer
2011-present	Principles of Environmental Health	(G48.1004)	Course Director
2013-present	Environ. Hygiene Measurements	(G48.2035)	Course Co-Director

## Awards and Honors

November 1999	Orange Environment Citizens Action Group, OE Award for Excellence in Translating Science to the Public
December 2000	NYU School of Medicine Dean's Research Incentive Award
October 2012	Recipient of the "Haagen Smit Prize" for Best Paper, <u>Atmospheric Environment</u> . <a href="http://geo.arc.nasa.gov/sgg/singh/winners12.html">http://geo.arc.nasa.gov/sgg/singh/winners12.html</a>
March 2013	Recipient of the "Best Paper of the Year – Science" Award from <u>ES&amp;T</u> . <a href="http://pubs.acs.org/doi/full/10.1021/es400924t">http://pubs.acs.org/doi/full/10.1021/es400924t</a>

## Major Committee Assignments

### New York University Committees

2007-present:	University Sustainability Task Force
2010-2012:	University Faculty Senate Alternate
2012-present:	University Faculty Senator

## NYU School of Medicine Departmental Committees

1992-1998:	Sterling Forest Library Committee, Member, NYU SOM Dept of Environ. Medicine
1991-1994	Health & Safety Committee, Member, NYU SOM Dept. of Environ.. Medicine
1992-2004	Community Outreach and Education Comm., Chairman, NYSOM Dept. of Environ. Med.
1999-2004	Dept. Chairman's Internal Advisory Comm., Member, NYUSOM Dept. of Environ. Med.
2005-present	Dept. Academic Steering Committee, Member, NYUSOM Dept. of Environ. Medicine
2007-2012	Dept. Appointments & Promotions Comm., Member, NYUSOM, Dept. of Environ. Medicine
2012-present	Dept. Appointments & Promotions Comm., Chair, NYUSOM, Dept. of Environ. Medicine

## Advisory Committees

### Regional

1983-1984	Massachusetts Acid Rain Advisory Board, Member, Mass. Dept. of Env. Protection
1984-1986	Committee on Environ. And Occup. Health. , NY State American Lung Association
1991-1996	Air Management Advisory Comm., Member of Health Effects Subcom., NY State DEC
1995-1999	Engineering Advisory Board, Member, Tuxedo, NY
1997-1998	Advisory Committee to the Mayor on the Port of Newburgh, Member, Newburgh, NY
1996-1999	CUES Asthma Working Group, Member, New York Academy of Medicine
2008-2010	New York City Community Air Study (NYCCAS) Advisory Panel

### National

1995-1999	Comm. on Health Effects of Waste Incineration, Member, National Academy of Sciences
1995-1999	National Air Conservation Commission, Member, American Lung Association
2000-2004	National Action Panel on Environment, Member, American Lung Association
2005-present	National Clean Air Committee, Member, American Lung Association
2007-2010	U.S. EPA Clean Air Science Advisory Committee (CASAC) for SO <sub>x</sub> and NO <sub>x</sub>
Mar. 2012	EPA Panelist for "Kickoff Workshop to Inform EPA's Review of the Primary NO <sub>2</sub> NAAQS"

### International

1996-1997	Sulfur in Gasoline Health and Environment Panel, Chairperson, Health Canada
Sept. 2007	Illness Cost of Air Pollution Expert Committee, Canadian Medical Association
2008-2012	Global Burden of Disease (GBD), Committee on the Human Health Effects of Outdoor Air Pollution, World Health Organization (WHO)

## Grant Review Committees (National)

March 1989	EPA Air Chemistry and Physics Extramural Grants Review Panel ( <i>ad hoc member</i> )
Oct. 1989	NIEHS P30 Center Special Review Panel ( <i>ad hoc member</i> )
July 1992	NIH R01 Epidemiology & Disease Control Study Section ( <i>ad hoc member</i> )
Nov. 1992	NIEHS P20 Center Development Grant Special Study Section, ( <i>ad hoc member</i> )
June 1996	EPA Special Review Panel of the Health Effects Institute (HEI) ( <i>ad hoc member</i> )
March 1997	EPA Office of Res. and Development External Grant Review Panel ( <i>ad hoc member</i> )
April 1997	NIEHS Community-Based Participatory Res. R01 Special Study Sect. ( <i>ad hoc member</i> )
July 1997	EPA National Environ. Research Lab Intramural Research Review Panel ( <i>ad hoc member</i> )
June 1998	EPA Office of Res. and Development External Grant Review Panel ( <i>ad hoc member</i> )
July 1998	EPA Climate Policy and Programs Division Grant Application Review ( <i>ad hoc member</i> )
Oct. 1998	Mickey Leland Center for Air Toxics Grant Review Panel ( <i>ad hoc member</i> )
April 2000	NIEHS P30 Center Special Review Panel ( <i>ad hoc member</i> )
July 2001	NIEHS Community-Based Participatory Res. R01 Special Study Sect. ( <i>ad hoc member</i> )
Dec. 2001	NIEHS Program Project P01 Site Visit Review Panel ( <i>ad hoc member</i> )
April 2003	NIH R21 Fogarty Health, Env. and Economic Development Study Sect. ( <i>ad hoc member</i> )
Nov. 2003	U.S. EPA STAR Grant Panel (Epidemiologic Research on Health Effects of Long-Term Exposure to Ambient Particulate Matter and Other Air Pollutants) ( <i>member</i> )
October 2004	NIEHS Program Project P01 Review Panel ( <i>ad hoc member</i> )
June 2005	NIH Special Emphasis Panel (ZRG1 HOP Q 90 S) ( <i>ad hoc member</i> )
Nov. 2005	NIH Infectious Disease, Reproductive Health, Asthma/Allergy, and Pulmonary (IRAP) Conditions Study Section Review Panel ( <i>ad hoc member</i> )

Feb. 2006	NIH Infectious Disease, Reproductive Health, Asthma/Allergy, and Pulmonary (IRAP) Conditions Study Section Review Panel ( <i>ad hoc member</i> )
June 2006	NIH Infectious Disease, Reproductive Health, Asthma/Allergy, and Pulmonary (IRAP) Conditions Study Section Review Panel ( <i>ad hoc member</i> )
Dec. 2006	NIEHS Special Emphasis Panel on Genetics, Air Pollution, and Respiratory Effects (ZES1 TN-E FG P) ( <i>member</i> )
Nov. 2007	NIH Special Emphasis Panel on Community Participation in Research (ZRG1 HOP-S) ( <i>member</i> )
June 2009	NIH Study Section Review Panel on Challenge Grants in Health & Science Research
March 2011	U.S. EPA Science to Achieve Results (STAR) Graduate Fellowship Review Panel – Clean Air Panel ( <i>chair</i> )
Sept. 2011	NIH Special Epidemiology Study Section (ZRG1 PSE K 02 M) ( <i>member</i> )
Oct. 2012	NIH Cardiac and Sleep Epidemiology (CASE) Study Section ( <i>ad hoc member</i> )
June 2013	NIH Special NHLBI Dataset Study Section (ZRG1 PSEQ 56) ( <i>member</i> )
July 2013	NIH “Career Awards” Study Section (ZES1 LWJ-D, K9) ( <i>member</i> )
Sept. 2013-17	Appointed Permanent Member, NIH Cancer, Heart, and Sleep Epidemiology Study Section (CHSE) Study Section
Nov. 2016	NIEHS R13 Study Section ( <i>member</i> )

#### Memberships, Offices, And Committee Assignments in Professional Societies

<i>Year</i>	<i>Society/Committees</i>
1980-1996	Air and Waste Management Association (Comm. on Health Effects and Exposure,)
1992-Present	American Thoracic Society (ATS): Environmental and Occup. Health (EOH) Assembly, 1995-1999, 2012-present: ATS EOH Long Range Planning Committee; 1993-1994, 2002-2004: ATS Program Committee 2006-2007 Chairman of the ATS-EOH Nominating Committee 2010-present: ATS Environmental Health Policy Committee, member 2012-2014: ATS Environmental Health Policy Committee, Vice-Chairman 2015-2017: ATS Environmental Health Policy Committee, Chairman
1990-present	International Society of Exposure Science
1992-present	International Society for Environmental Epidemiology (Annual Meeting Program Committee: 1998, 2000, 2003, 2004, 2006) (ISEE Conference Planning Committee: 2006-present)
2007-2009	New York Academy of Sciences (membership given in appreciation for a 1/23/07 NYAS forum presentation)
2017-present	American Public Health Association (APHA)

#### **Editorial Positions**

##### Journal Board Membership

<i>Year</i>	<i>Name of Board</i>
1993-2008	International Society of Exposure Analysis (J. of Exp. Anal. and Environ. Epid.)

##### Ad Hoc Manuscript Reviewer

<i>Years</i>	<i>Journal</i>
1996-1998	American Journal of Epidemiology
1994	Archives of Environmental Health
1995-present	Atmospheric Environment
1995-present	Environmental Health Perspectives
1994-present	Environmental Research
2004-present	Environmental Science and Technology
2011-present	Epidemiology
1993-present	Journal of Exposure Analysis and Environmental Epidemiology



1994-present	Journal of the Air and Waste Management Association
1996-present	Journal of the American Medical Association
1997-present	Journal of Occupational and Environmental Medicine
1997-present	Journal of Respiratory and Critical Care Medicine
2006-present	Thorax

#### Scientific Report Reviewer

August, 1986	Reviewer for the National Academy of Sciences, Board on Environmental Studies and Toxicology report “The Airliner Cabin Environment: Air Quality and Safety”
October, 2002	Reviewer for the NAS, Board on Environmental Studies and Toxicology report “Estimating the Public Health Benefits of Proposed Air Pollution Regulations”

### **Mentoring of Graduate Students, Residents, Post-Doctoral Fellows in Research**

Under direct supervision:

<i>Student Name</i>	<i>Type of Position</i>	<i>Time Period</i>	<i>Present Position</i>
Mark Ostapczuk	Masters	1984-1986	Industrial Hyg., Barr Labs, Pomona, NJ
Kazuhiko Ito	Masters/Doctoral	1984-1990	Scientist, NYC Dept. of Health, NYC, NY
Peter Jaques	Masters/Doctoral	1988-1998	Assoc. Prof., Clarkson Univ., Potsdam, NY
R. Charon Gwynn	Masters/Doctoral	1992-1999	Epidemiologist, Columbia Univ., NY
Ramona Lall	Masters/Doctoral	2000-2007	Research Sci. IV, NYC Dept. of Health, NY
Ariel Spira-Cohen	Masters/Doctoral	2003-2009	Research Sci. III, NYC Dept. of Health, NY
Kevin Cromar	Masters/Doctoral	2008-2012	Assistant Professor, NYU School Of Medicine
Lital Yinon	Doctoral	2011-present	Doctoral Candidate, NYU School of Medicine
Chris Lim	Doctoral	2012-present	Doctoral Candidate, NYU School of Medicine

In advisory function (thesis committee):

<i>Student Name</i>	<i>Advisory Role</i>	<i>Time Period</i>	<i>Student's Supervisor</i>
Shao-Keng Liang	Doctoral Committee member	1990-1994	Dr. J. Waldman, UMDNJ, Rutgers
Jerry Formisano	Doctoral Committee member	1997-2000	Dr. M. Lippmann, NYU SOM
Yair Hazi	Doctoral Committee member	1993-2001	Dr. B. Cohen, NYU SOM
Samantha Deleon	Doctoral Committee member	1997-2003	Dr. K Ito, NYU SOM
Chun Yi Wu	Doctoral Committee member	2000-2004	Dr. L.C. Chen, NYU SOM
Carlos Restrepo	Doctoral Committee member	2002-2004	Dr. R. Zimmerman, Wagner, NYU
Shaou-I Hsu	Doctoral Committee member	2000-2009	Dr. M. Lippmann, NYU-SOM
Steven Schauer	Doctoral Committee member	2007-2009	Dr. B. Cohen, NYU-SOM
Christine Ekenga	Doctoral Committee Chair	2009-2011	Dr. G. Friedman-Jimenez, NYU-SOM
Rebecca Gluskin	Doctoral Committee Chair	2009-2012	Dr. Kazuhiko Ito, NYU SOM
Jiang Zhou	Doctoral Committee Chair	2008-2012	Dr. Kazuhiko Ito, NYU SOM
Eric Saunders	Doctoral Committee Chair	2012-present	Dr. Terry Gordon, NYU SOM

### **Teaching Awards Received**

N/A

### **Major Research Interests**

- 1) Air Pollution Epidemiology: Real-world air pollution exposures and human health effects in the general population and study cohorts of suspected susceptible individuals (e.g., children).
- 2) Aerosol Science: Ambient particulate matter aerosol exposures, including designing and implementing air monitoring equipment to collect human exposures to air pollution.

3) Environmental Exposure Assessment: Methods to assess human exposures and health effects from air pollution, especially the development of source apportionment models to separate human effects on the basis of pollution source. Design of epidemiological models/methods that better incorporate potential air pollution confounders/effect modifiers (e.g. weather and genetic influences).

## Grants Received

### *Prior:*

Agency	Title	Grant #	Period	Total Direct Costs	Role	% Effort
USEPA	Effects of Acute Exposure to Summertime Haze Episodes on the Health of Humans	R811563	05/01/84-09/30/87	\$538,586	Co-I	50%
NIH	Acid Aerosol Exposure: Effect on Respiratory Morbidity	R01 ES04612	09/25/87-08/31/92	\$846,966	PI	30%
USEPA	Acid Aerosol Chamber Experiments	OD2524AEX	7/2/90-7/31/90	\$5,810	PI	9%
USEPA	Analysis of Acid Aerosol Experiments	00422248NAEX	8/1/90-9/30/90	\$3,364	PI	5%
USEPA	Air Pollutants and Human Health	R814023	05/18/87-05/17/91	\$690,921	CO-I	50%
USEPA	Development and Field Applic. of an Automated Sequential Weekly Average H+ Sampler	Subcontract to EPA Grant CR816740-03	6/1/92-2/28/93	\$13,156.	PI	15%
NIH	Acid Aerosol Exposure: Effect on Respiratory Morbidity	R01 ES04612	09/01/92-08/31/95	\$377,298.	PI	30%
HEI	Retrospective Characterization of Ozone Exposures	Health Effects Institute Grant	11/1/93-10/31/94	\$98,238	CO-I	10%
NIH	Temperature and Air Pollution Effects on Human Mortality	R01 ES05711	6/1/92-5/31/95	\$371,993	PI	30%
NYUSOM	Environmental Effects on Human Mortality and Morbidity	Bridge Grant	9/1/95-8/31/96	\$48,400	PI	-
USEPA	Effects of Exposure to Ambient Air Pollutants on Human Health	R808325	10/1/91-09/30/96	\$870,565	CO-I	50%
USEPA	Investigation of Acid Aerosol Exposures in Metropolitan Settings	Subcontract to Grant No. CR822050	11/1/93-10/31/96	\$200,499	PI	10%
USEPA	An Evaluation of Potential Confounders in PM10 Mortality Associations	R825271	11/25/96-11/24/01	\$219,410	CO-I	10%
USEPA	Acidic PM and Daily Human Mortality in Three U.S. Cities	#R825264	11/25/96-11/24/00	\$232,671	PI	15%
NYS-ERDA	Environmental Monitoring, Evaluation, and Protection Program	6084-ERTER-ES00	12/01/99-11/30/02	\$341,926	PI	20%
HEI	Children's Asthma Incidence and Personal Exposures to Diesel Particles and Traffic in NYC		01/01/02-12/31/02	\$154,800	PI	30%
USEPA	Influence of Alternate	R827358	03/01/99-	\$183,089	PI	30%

	Indicators of Exposure to PM and PM Components in Statistical Associations with Mortality and Hospital Admissions		02/28/03			
NIH	NIEHS Center Supplement: Health Issues Related to the World Trade Center Disaster, Outreach Project	ES00260-S1	04/01/02-03/31/03	Total=\$ 936,487 Outreach=\$172,031	Co-PI PI	10% 15%
NIH	Effects of Ambient Air Pollutants on Annual Mortality	RO1 ES09560	9/15/99-8/31/03	\$471,408	PI	30%
USEPA	Particle Exposures of High-Risk Sub Populations	R827164	10/01/98-09/30/03	\$1,327,240	Co-I	10%
USEPA	A Source Oriented Evaluation of the Combined Effects of Fine Particles and Co-pollutants	R827997	02/01/00-01/31/04	\$291,407	Co-I	15%
NIH	NIEHS Center Grant: Outreach and Education Program	ES00260	04/01/00-03/31/05	Total=\$5,000,000 Outreach=\$240,365	Co-I PI	5% 5%
USEPA	EPA PM Health Effects Center Project 6: "A Prospective Study of Asthma Susceptibility to PM Epidemiologic Investigations of Key PM Components and Biomarkers of Effects & Community Outreach Project	R827351	06/01/99-05/31/05	Total=\$6,000,000 Project 6=\$134,923 Outreach=\$77,779	Co-PI PI PI	15% 10% 10%
NIH	Genetic/Epigenetic Susceptibility to Superfund Chemicals: Outreach Project	ES010344	05/08/00-03/31/06	\$156,812	Co-I	5%
USEPA	Env. Issues in the South Bronx. Thurston Project: S. Bronx Backpack Study	X1982152	08/01/00-09/30/06	Total=\$921,922  Project=\$307,131	CO-I  PI	5%  15%
NIH	NIEHS Center Supplement: Health Issues Related to the World Trade Center Disaster, Source Attribution (Project 4) & Community Outreach	ES00260-S2	04/01/02-03/31/04	Total=\$660,000 Project 4=\$69,999 Outreach=\$172,031	Co-PI PI PI	10% 10% 15%
USEPA	The role of traffic-related pollution in PM health effects associations among inner-city children with asthma	16511	09/01/06-08/31/09	\$51,516	PI	-
California Air Resources Board (CARB)	Spatio-temporal Analysis of Air Pollution and Mortality in California Based Upon the ACS Cohort (Thurston: Consulting Project)		06/01/07-5/31/10	Project=\$13,634	Co-I	4%
USEPA	Real time modeling of weather, air pollution, health outcome indicators in NYC.	RD-83362301-0	12/07-11/10	\$130,496	Co-I	5%
NIH	Fine Particles and Out-of-Hospital Cardiac Arrest in New York City	R01ES014387-01A2	04/09-12/11	\$200,000	Co-I	10%

Health Effects Institute (HEI)	Characteristics of PM Associated with Health Effects. <i>Thurston Project</i> : “Study Of PM Components and U.S. Human Mortality In The ACS Cohort.	4750	01/01/07-3/31/11	Total=\$3,247,567 Project=\$355,920	Co-I PI	5% 20%
NT State DOT	Mobile Source Air Toxics Mitigation Measures		09/01/10 06/31/13	SubProject=\$89,062	Co-I	10%
Robert Wood Johnson Fndn.	The Effect of Peak-Shaving Regulations on the Activity, Toxic Emissions, and Health Impacts of Local Power Plants	Public Health Law Research	1/12-7/13	\$151,500	Co-I	10%
NIH	Dietary Influence on Mortality from Air Pollution Exposure in the NIH-AARP Cohort (R21)	1R21ES021194-01	7/12-6/15	\$150,000	MPI (Contact PI)	8%

**Current:**

Agency	Title	Grant #	Period	Total Direct Costs	Role	% Effort
NIH	Long-term Air Pollution Exposure and Mortality in the NIH-AARP Cohort.	R01ES019584-01A1	1/01/12-6/30/18	\$1,221,253	MPI (Contact PI)	20%
The Public Health Research Institute of Abu Dhabi	Development of a Public Health Research Institute in Abu Dhabi. <i>Thurston Project</i> : “Air Pollution in Abu Dhabi”.		3/2012-2/2018	\$9,993,960	Co-I	5%

**Patents**

None

**Boards and Community Organizations**

1990-1995 St. Mary’s Episcopal Church, Tuxedo, NY, Vestry member  
1992-2008 Monroe-Woodbury Soccer Club, Coach (Board Member: 1999-2000)  
1994-1999 Orange County Citizen’s Foundation, Member  
1999-2009 Y2CARE Monroe-Woodbury, NY School District Residents Action Group, Founder  
2005-present St. Mary’s Episcopal Church, Tuxedo, NY, Community Outreach Committee, Member  
2006-present EPISCOBUILD-Newburgh, NY Habitat for Humanity Advisory Board, Member  
2012-present St. Mary’s Episcopal Church, Tuxedo, NY, Vestry member

**Military Service**

None





NRG Texas Power LLC  
1000 Main  
Houston, Tx 77002

May 5, 2017

**VIA ELECTRONIC FILING AND CERTIFIED U.S. MAIL**

Mr. Joe Kordzi  
Air Planning Section (6PD-L)  
Environmental Protection Agency  
1445 Ross Avenue, Suite 700  
Dallas, Texas 75202-7186

**Re: Comments of NRG Texas Power LLC on EPA's Proposed Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan**

**Docket No. EPA-R06-OAR-2016-0611, 82 Fed. Reg. 912 (January 4, 2017)**

Dear Mr. Kordzi,

NRG Texas Power LLC ("NRG") respectfully offers the following comments on the Environmental Protection Agency's ("EPA's") proposed Federal Implementation Plan ("FIP") to establish Best Available Retrofit Technology requirements ("BART") to address regional haze in Texas and nearby states (the "Proposed Rule").

NRG is a subsidiary of NRG Energy, Inc., a Fortune 250 Company and one of the country's largest power generation and retail electricity businesses. NRG Energy's power plants provide about 46,000 megawatts of generation capacity, and its retail businesses serve more than three million customers throughout the country. In Southeast Texas, NRG owns more than 10,000 MW of generation capacity from nine electric generating stations. NRG supports clean energy resources and technologies critical to our transition to a sustainable, low carbon society. We appreciate the opportunity to provide comments on EPA's proposal.

NRG does not support the adoption of the proposed FIP, which would require stringent new emission controls on Units 5 and 6 at NRG's W. A. Parish Electric Generating Station (the "Parish Units"). In short:

(1) The photochemical modeling supporting the FIP did not reliably predict the Parish Units' minimal visibility impacts, due in part to the substantial distance between Parish and the Class I areas addressed.

(2) EPA's visibility modeling was fundamentally flawed as a result of multiple erroneous inputs and methods. Were EPA to adopt a less flawed approach to modeling visibility impacts, the Parish Units would meet the insignificance threshold, and are therefore not properly subject to BART. EPA should correct its analysis to confirm that the Parish Units are not subject to BART.

(3) EPA's five-factor BART analysis was also fundamentally flawed as a result of erroneous inputs and methods. If EPA were to decide (erroneously) that the Parish Units were subject to BART, EPA should correct its five-factor BART analysis to show that the Parish Units satisfy BART without additional controls.

(4) Despite these flaws, if EPA were to impose additional BART controls on the Parish Units, EPA should integrate appropriate alternative compliance options.

**1. EPA previously determined that additional controls at the Parish Units are not appropriate given their limited visibility impacts.**

The photochemical modeling supporting the FIP does not reliably predict the Parish Units' minimal visibility impacts, due in part to the substantial distance between Parish and the Class I areas addressed.

The Parish Units are 562 kilometers from the nearest Class I area--a greater distance than any other individually-modeled electric generating unit ("EGU") by EPA in this FIP.<sup>1</sup> At this distance, the Parish Units are unlikely to contribute to the visibility impairment at any Class I area. Furthermore, according to the independent analysis of AECOM (attached), photochemical grid models--e.g., the Comprehensive Air Quality Model with Extensions ("CAMx") used to model the Parish Units' visibility impact--have never been subjected to a single rigorous and comprehensive evaluation of their ability to accurately determine source-specific impacts over such long ranges.<sup>2</sup> In fact, a 2012 ENVIRON study found that CAMx over-predicts tracer concentrations by a factor of three at such distances.<sup>3</sup>

In an earlier action, EPA concluded that the minimal visibility impacts of the entire Parish site do not justify additional controls. In its January 2016 *Texas and Oklahoma FIP*, published just one year prior to the Proposed Rule, EPA determined that no additional SO<sub>2</sub> controls were needed at Parish in order for Texas to meet its reasonable progress goals for visibility.<sup>4</sup> According to EPA, the visibility benefit of controls at Parish "do not merit the installation of scrubbers at this time."<sup>5</sup> This determination considered the impact of *all four* coal-fired units at the Parish site, which includes two additional coal-fired units (Unit 7, which is unscrubbed, and Unit 8, which is equipped with a scrubber) that are not BART-eligible, and therefore were not considered in the current Proposed Rule.<sup>6</sup>

Given the great distance between the Parish Units and any Class I area, and the limitations of the CAMx model, EPA should reaffirm its 2016 determination that the installation of scrubbers is not justified at the Parish Units.

**2. Flaws in EPA's modeling led to inconsistent and indefensible results.**

EPA's visibility modeling was fundamentally flawed as a result of multiple erroneous inputs and methods. Were EPA to adopt a less flawed approach to modeling visibility impacts, the Parish Units would meet the insignificance threshold, and are therefore not

---

<sup>1</sup> EPA, *Technical Support Document for Assessing which Units are Subject to BART for the Texas Regional Haze BART Federal Implementation Plan* (Nov. 2014) ("BART Screening TSD"), at 12.

<sup>2</sup> See Report of AECOM, *Summary of Findings for the Proposed Rule: Promulgation of Air Quality Implementation Plan; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan* ("AECOM Report") (Apr. 2017), at 4-1, attached.

<sup>3</sup> AECOM Report at 4-2.

<sup>4</sup> 81 Fed.Reg. 296 at 331 (Jan. 5, 2016).

<sup>5</sup> EPA, *Technical Support Document for the Oklahoma and Texas Regional Haze Federal Implementation Plans* ("FIP TSD") (Nov. 2014) at 31.

<sup>6</sup> 81 Fed.Reg. 296 at 331 (Jan. 5, 2016); see also EPA, *Technical Support Document for the Oklahoma and Texas Regional Haze Federal Implementation Plans* ("FIP TSD") (Nov. 2014) at 24.

properly subject to BART. EPA should correct its analysis to confirm that the Parish Units are not subject to BART.

Flaws in EPA's approach to modeling visibility impacts led to an overestimate of individual source emissions and contributions to visibility impacts at Class I areas. As AECOM observed, "[f]undamentally, if the model is intentionally configured in such a way as to not represent the physical world, as USEPA as done in this proposal, the results cannot also be expected to be a reliable indicator of the potential visibility benefits from installation of control technologies."<sup>7</sup>

***a. EPA's modeling overestimated individual source emission rates.***

EPA's CAMx modeling predicted each facility's visibility impact based on the maximum actual 24-hour emission rates for NO<sub>x</sub> and SO<sub>2</sub> from the 2000-2004 baseline period from EPA's Air Markets Program Data.<sup>8</sup> Using this baseline period, EPA evaluated the visibility impact from the Parish Units using a base case of 97.654 and 94.288 tons per day (tpd) of SO<sub>2</sub>, respectively.<sup>9</sup> These numbers significantly inflate the Parish Units' actual maximum daily SO<sub>2</sub> emissions over the last five years.

During the period of 2012 to 2016, a period more representative of current operations than the more than decade old operating conditions that EPA used, the actual maximum daily SO<sub>2</sub> emissions from Parish Units 5 and 6 were 65.69 and 75.14 tpd SO<sub>2</sub>, respectively--i.e., approximately 67% and 80% of the emissions that EPA modeled.<sup>10</sup> By using erroneous emission rates, EPA's model is both overestimating a facility's actual visibility impact and overstating the benefits of any imposed control technology.

***b. Flaws in EPA's model inputs resulted in inaccurate visibility impact results.***

The inputs into EPA's CAMx modeling contained several assumptions that departed from real-world conditions. For example, EPA's model assumed that all facilities under BART consideration are emitting at five-year peak daily levels concurrently, an assumption that has never occurred and likely will never occur.<sup>11</sup> This assumption has unreasonably altered the chemical environment and introduced additional uncertainty into the modeling as CAMx is designed to portray the cumulative atmospheric concentrations from all sources modeled.

EPA's approach also failed to identify, disclose, or address model errors or biases. For instance, EPA failed to account for diurnal, weekly, monthly, and seasonal variations when determining the maximum daily emissions modeled. The expected seasonal variations can and should be translated into expected diurnal and seasonal cycles in order to establish a modeling analysis that is more representative of reasonably expected conditions.

Finally, EPA failed to conduct future year modeling in its approach. As a result, EPA's modeling has not been adjusted for any bias associated with expected future- year conditions. According to AECOM, "by not assessing future year conditions, and making an effort to estimate the actual impacts on visibility from the BART-eligible facilities, the impact of controls, and control effectiveness are only assessed for historical (2002) conditions, neglecting the reality that air quality conditions in 2017 and beyond are not accurately

---

<sup>7</sup> AECOM Report at 1-1.

<sup>8</sup> 82 Fed. Reg. 912 at 920 (Jan. 4, 2017).

<sup>9</sup> EPA, *Technical Support Document for the Visibility Analysis of Potential Controls for Subject to BART sources for the Texas Regional Haze BART Federal Implementation Plan BART Modeling TSD* (Nov. 2016, revised Dec. 2016) ("BART Modeling TSD"), at 11.

<sup>10</sup> AECOM Report at 3-2.

<sup>11</sup> BART Screening TSD at 37.

depicted because emissions from these sources are significantly lower than they were in 2002.”<sup>12</sup>

Given all of these flaws, EPA’s modeling analysis does not represent any actual past, present, or expected future conditions. Accordingly, the results cannot be relied upon to present an accurate assessment of the visibility benefits of new controls.

***c. Flaws in EPA’s post-processing techniques resulted in inaccurate visibility impact results.***

EPA’s modeling approach evaluated the Parish Units’ visibility impacts based on their maximum modeled impact considering combined emissions of both NO<sub>x</sub> and SO<sub>2</sub>. This approach is not appropriate given the limitations of EPA’s CAMx modeling, and further fails to recognize that the units’ NO<sub>x</sub> emissions are already controlled for BART.

***i. EPA’s visibility impact modeling should be limited to SO<sub>2</sub>***

EPA’s inclusion of NO<sub>x</sub> in its modeling analysis for the Parish Units was in error. As explained by EPA the Proposed Rule, the Cross-State Air Pollution Rule (“CSAPR”) “is still an appropriate alternative to BART for NO<sub>x</sub> purposes because EGUs in Texas continue to be required to participate in CSAPR’s ozone season NO<sub>x</sub> program.”<sup>13</sup> In similar instances, EPA has approved a pollutant-specific approach to modeling impacts where NO<sub>x</sub> BART was already satisfied by the Clean Air Interstate Rule, the precursor to CSAPR. Given that NO<sub>x</sub> BART was already determined through CSAPR, EPA should adopt a similar approach to determine BART applicability based on SO<sub>2</sub>-specific visibility impacts.

***ii. EPA’s use of the maximum value threshold is inappropriate with respect to its CAMx modeling***

In the Proposed Rule, EPA used a CAMx screening threshold for determining BART applicability based on a unit’s maximum impact.<sup>14</sup> EPA explains this approach by asserting that CAMx is less conservative than CALPUFF in predicting high values for visibility impairment.<sup>15</sup> However, this explanation fails to account for the distance and source-specific limitations of the CAMx platform and the fundamental flaws relating to EPA’s approach to the model in the Proposed Rule, both of which led to unrepresentative visibility impact determinations. In short, saying that CALPUFF is inaccurate at distance is not a basis to say that CAMx is accurate at distance.

In EPA’s 2005 *Final Rule establishing Regional Haze Regulations and Guidelines for BART Determinations*, EPA determined “it would be reasonable for States to compare the 98th percentile of CALPUFF modeling results against the ‘contribution’ threshold established by the State for purposes of determining BART applicability.”<sup>16</sup> This determination was based on EPA’s concern that, because the model includes “certain assumptions and uncertainties,” it may magnify the actual visibility impacts of the modeled source.<sup>17</sup>

As discussed above, EPA’s approach to the CAMx platform in the Proposed Rule contains similar uncertainties that magnify the modeled visibility impacts. To address this uncertainty, EPA should adopt an appropriate, defensible approach to establishing a CAMx

---

<sup>12</sup> AECOM Report at 2-3.

<sup>13</sup> 82 Fed. Reg. 912 at 915, footnote 23.

<sup>14</sup> BART Screening TSD at 37.

<sup>15</sup> *Id.* at 35.

<sup>16</sup> 70 FR 39,104 at 39,121 (July 6, 2005).

<sup>17</sup> *Id.*

screening threshold comparable to the 98th percentile approach undertaken for CALPUFF screening.

- d. *Were EPA to adopt a less flawed approach to modeling visibility impacts, the Parish Units would meet the insignificance threshold, and are therefore not properly subject to BART.***

The combination of erroneous inputs in EPA's application of the CAMx model resulted in inaccurate predictions that the Parish Units would exceed EPA's 0.5 delta-deciview threshold for significant contribution. Were EPA to adopt a less flawed approach, and account for the limitations of the CAMx modeling platform at the distance between Parish and the affected areas, the Parish Units would meet the insignificance threshold, and are therefore not properly subject to BART.

### **3. EPA's Five-Factor Analysis Was Fundamentally Flawed.**

EPA's five-factor BART analysis was also fundamentally flawed as a result of erroneous inputs and methods. If EPA were to decide (erroneously) that the Parish Units were subject to BART, EPA should correct its five-factor BART analysis to show that the Parish Units satisfy BART without additional controls.

- d. *Additional controls at the Parish Units are not cost-effective when evaluated in accordance with BART guidelines and the OAQPS Control Cost Manual.***

**iii. EPA's cost of compliance method was not in accordance with BART guidelines or the OAQPS Control Cost Manual**

EPA's BART guidelines suggest that, to maintain and improve consistency, cost estimates should be based on the Office of Air Quality Planning and Standards ("OAQPS") Control Cost Manual where possible.<sup>18</sup> Although the Manual does not specifically address the technologies evaluated the Parish Units, it provides a five-step method that can be used to develop study-level cost estimates.<sup>19</sup> EPA's approach to developing cost estimates departed from the method described in the Control Cost Manual.

**iv. EPA incorrectly adjusted the control system costs by removing certain indirect costs from the IPM-generated cost estimates.**

EPA erroneously relied on cost algorithms in its Integrated Planning Model ("IPM") to estimate facility-specific control system costs. The IPM cost algorithms provide generic order-of-magnitude retrofit costs for various air pollution control technologies which can be used to compare potential compliance costs to the electric generating industry for various control system alternatives. These IPM algorithms do not take into consideration unit-specific operating parameters, site-specific constraints or constructability issues, or site-specific limits and conditions that could affect the balance of plant costs that a facility would incur to install and successfully operate the control system. Examples of site-specific items that could significantly affect control system costs include, but are not limited to, demolition and relocation of existing buildings/facilities, modifications to the facility's material handling systems, modifications to a unit's ash handling system, modifications to, or construction of, new wastewater treatment systems, and modifications/upgrades to the unit's existing

---

<sup>18</sup> 40 C.F.R. Part 51, Appendix Y, Section IV.D.4: "Step 4: For a BART review, what impacts am I expected to calculate and report? What methods does EPA recommend for the impacts analyses?"

<sup>19</sup> Office of Air Quality Planning and Standards (OAQPS), *EPA Air Pollution Control Cost Manual, Sixth Edition* (Jan. 2002), EPA/452/B-02-001.

auxiliary power system. These modifications will add significant capital and operating costs to the installation and operation of the proposed control systems.

The IPM cost algorithms also do not account for all project-specific indirect costs, nor do they take into consideration project-specific labor productivity. Rather, the IPM cost algorithms use generic factors to calculate indirect project costs for items such as engineering and construction management, premiums, and per diems. Given these limitations, the IPM algorithms are not intended to estimate costs for a specific unit.

EPA further adjusted the control system costs by removing certain indirect costs from the IPM-generated cost estimates. Specifically, EPA excluded both Owner's Costs and an allowance for funds used during construction ("AFUDC"). EPA asserted that these costs are disallowed by the "overnight" cost method used in the Control Cost Manual.<sup>20</sup> However, the Control Cost Manual allows for consideration of the time value of money, which is inconsistent with EPA's assertion that the Manual describes an overnight cost estimate. These two indirect costs alone--i.e., Owner's Costs and AFUDC--add approximately \$50 million in costs at each Parish Unit that EPA did not consider in its analysis.<sup>21</sup> Removing these costs, which are allowed by the Control Cost Manual method, significantly reduced capital costs associated with the high-capital/long-duration options and arbitrarily skewed the results of the cost-effectiveness evaluation to favor the high-capital/long-duration control options.

#### **v. EPA used incorrect inputs and assumptions to calculate capital costs and annual SO<sub>2</sub> emission reductions.**

Even if it were assumed that the order-of-magnitude costs generated by the IPM cost algorithms were sufficiently accurate to estimate site-specific project costs, EPA used incorrect inputs and assumptions to calculate capital costs and annual SO<sub>2</sub> emission reductions.

As explained by a review of EPA's costs estimates conducted by Sargent & Lundy ("S&L") (provided as a separate confidential submittal), EPA did not properly specify the design fuel SO<sub>2</sub> emission rate used to size, and ultimately cost, the control systems. Rather than taking into account all reasonably expected fuel sulfur contents based on actual fuel data and sizing the equipment based on the highest uncontrolled emissions, EPA used a monthly average emission rate as input to the IPM cost modules. Designing a control system based on an average fuel sulfur content would result in an undersized control system. The system needs to be designed to handle the highest sulfur content (just like a car needs to be designed for its highest speed rather than its average speed).

EPA also used an incorrect method to calculate annual SO<sub>2</sub> emission reductions associated with each control option. To calculate annual SO<sub>2</sub> emission reductions, EPA multiplied baseline annual emissions by a constant removal efficiency. The removal efficiency was calculated as the efficiency required to reduce the maximum monthly average SO<sub>2</sub> emission rate to a controlled rate of 0.06 lb/MMBtu and 0.04 lb/MMBtu for the Spray Dryer Absorber ("SDA") and Wet Flue Gas Desulfurization ("WFGD") options, respectively. By applying this removal efficiency to the baseline annual emissions, EPA overestimated total annual SO<sub>2</sub> emission reductions. A more consistent approach would be to multiply the proposed FIP emission rate by the annual average heat input during the baseline period.

---

<sup>20</sup> EPA, *Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan* ("BART FIP TSD") (Nov. 2016), at 47.

<sup>21</sup> Sargent & Lundy, *SO<sub>2</sub> Control Technology Cost Effectiveness for W.A. Parish Units 5 & 6* ("S&L Report") (May 4, 2017) at 12.

As a result, EPA overestimated the annual SO<sub>2</sub> emission reductions, underestimated control system capital costs, and overstated control system cost-effectiveness.

**vi. When evaluated in accordance with the BART Guidelines and the OAQPS Control Cost Manual, the costs of compliance associated with additional control technology at the Parish Units are unreasonably high.**

EPA's proposal included a cost-effectiveness analysis that contained fundamental flaws, some of which are outlined here. S&L prepared revised cost estimates for NRG in connection with its comments on EPA's proposed Texas BART rule. The S&L cost estimates represent study-level cost estimates, based on unit-specific operating and design parameters, limitations, and site constraints, including unit-specific mass balances and operating temperatures to calculate flue gas flow and size the associated WFGD equipment. S&L's estimate is further based on a site-specific general arrangement ("GA") drawing to estimate installed quantities of structural steel, foundations, ductwork, cable, pipes, etc. S&L's cost-effectiveness analysis was preliminary. It was sufficient to show that EPA's proposed add-on controls are unreasonably costly, but a more in-depth study could establish that the relevant costs are actually higher.

S&L's analysis estimated the capital costs associated with installing and operating WFGDs at Parish Units 5 and 6 at approximately \$800 million.<sup>22</sup> This results in a cost-effectiveness level more than double that estimated through EPA's flawed approach. S&L's cost-effectiveness levels for Parish exceed the cost/ton for controls at every other EGU analyzed in the Proposed Rule.<sup>23</sup> Considered on a dollar-per-deciview basis--and accepting EPA's estimated visibility benefits (shown above to have been dramatically inflated)--the visibility improvements associated with a WFGD at Parish would cost approximately \$500,000 per *one thousandth* of a deciview ("dv").

When assessed against visibility impacts more representative of actual conditions, these costs-per-deciview would become even more unreasonable. For instance, in the January 2016 *Texas and Oklahoma FIP*, when EPA modeled the cumulative impact of the Parish site at 19 Class I areas, EPA found that installing scrubbers at Parish would result in a visibility benefit of only 0.089 dv and 0.097 dv, respectively, when compared to CENRAP 2018 projections for these units.<sup>24</sup> Based on these modeled benefits, the cost-per-deciview skyrockets to roughly \$5.7 million per one thousandth of a deciview.

For similar reasons as outlined above, EPA underestimated the cost of compliance associated with using Dry Sorbent Injection ("DSI") and SDA. Correcting for EPA's flawed analysis, with respect to control system capital costs, control system O&M costs, and annual emission reductions, the costs of compliance associated with using DSI and SDA at the Parish Units are significantly higher than estimated by EPA. Additionally, the visibility benefits associated with SDA or DSI installations at Parish are even smaller than those for WFGD.

**e. Installation of control equipment at the Parish Units will not result in meaningful visibility improvement at any Class I area.**

EPA's FIP estimated the visibility improvement associated with installing WFGDs at Parish Units 5 and 6 to be 1.518 and 1.492 dv, respectively.<sup>25</sup> As discussed above, the flawed assumptions and data that underlie EPA's CAMx modeling approach led to

---

<sup>22</sup> S&L Report at 10.

<sup>23</sup> See, 82 Fed. Reg. 912 at 926-27 (Jan. 4, 2017).

<sup>24</sup> EPA, *Technical Support Document for the Oklahoma and Texas Regional Haze Federal Implementation Plans* ("FIP TSD") (Nov. 2014) at A-74.

<sup>25</sup> 82 Fed. Reg. 912 at 932 (Jan. 4, 2017).

dramatically inflated estimates of the visibility benefits associated with the installation of control technology. Were EPA to undertake a modeling approach that corrected for these errors, the actual visibility benefit associated with controls at the Parish Units would be minimal, which would weigh even further against establishing additional controls as part of the five-factor test for BART.

In its January 2016 *Texas and Oklahoma FIP*, EPA found that no additional SO<sub>2</sub> controls were needed at Parish in order for Texas to meet its reasonable progress goals.<sup>26</sup> This determination was based on the minimal visibility benefit and EPA's estimated WFGD capital costs of \$260,195,000 and \$270,350,000 (which are far less than the actual costs).<sup>27</sup>

Nothing significant has changed since 2016. EPA's erroneous 2016 cost-effectiveness analysis does not vary greatly from the erroneous estimates in EPA's 2017 FIP proposal.<sup>28</sup> Furthermore, although EPA now portrays a greater visibility benefit associated with installation of controls, the modeling that EPA conducted to support these estimates is fundamentally flawed. Accordingly, EPA should find once again that the projected visibility benefits of new controls still do not merit the installation of scrubbers at the Parish Units.

**4. If EPA were to determine that the Parish Units require additional add-on controls, EPA should integrate an alternate SO<sub>2</sub> BART compliance option establishing an alternate fuel strategy at Parish Units 5 and 6.**

Despite these flaws, if EPA were to nonetheless impose additional BART controls on the Parish Units, EPA should integrate appropriate alternative compliance options.

As discussed above, no additional controls are justified to establish BART for the Parish Units. However, if EPA were to determine (erroneously) that additional add-on controls represent BART at the Parish Units, EPA should integrate an alternative compliance option integrating an alternate fuel firing scenario. In this event, NRG would integrate permit conditions modeled on those approved by EPA for similar alternate strategies for other units in other states.

EPA's analysis of available retrofit technologies failed to identify potentially applicable retrofit control alternatives, as discussed in the BART Guidelines, such as the "use of inherently lower-emitting processes/practices ... and work practices that prevent emissions and result in lower 'production-specific' emissions."<sup>29</sup> The Parish Units are capable of accommodating lower-sulfur coal. An alternative fuel strategy based on the use of ultra-low-sulfur coal would result in SO<sub>2</sub> reductions from the Parish Units. If EPA were to require scrubbers as BART for the Parish Units, EPA should integrate a compliance alternative whereby NRG could avoid installing those controls, and instead integrate permit conditions with the same compliance date, requiring the use of a blend of ultra-low-sulfur coal, if available.

EPA has approved comparable flexibility for BART sources in other states. For example, in its recently promulgated FIP for Arkansas, EPA provided an "alternative method for demonstrating compliance" for the Domtar Ashdown Mill Power Boiler No. 2 to account for a repurposing project that would potentially result in a fuel switch from coal to natural gas.<sup>30</sup> EPA set an SO<sub>2</sub> BART emission limit requiring scrubber upgrades at the boiler within five years of the action, with compliance demonstrated by an existing CEMS and

<sup>26</sup> 81 Fed.Reg. 296 at 331 (Jan. 5, 2016).

<sup>27</sup> 81 Fed.Reg. 296 at 331 (Jan. 5, 2016).

<sup>28</sup> FIP TSD at A-74.

<sup>29</sup> 40 CFR Part 51, App. Y, IV.D.3.

<sup>30</sup> 81 Fed. Reg. 66,332, 66,373 (Sept. 27, 2016).



recordkeeping and reporting requirements.<sup>31</sup> However, to give the source "flexibility" for the repurposing project, EPA also allowed the source to demonstrate compliance with the SO<sub>2</sub> BART emission limit by switching the boiler to burning only natural gas and revising its air permit to reflect the switch.<sup>32</sup> In explaining its action, EPA stated in part that the boiler "could avoid unnecessary investment in a scrubber that may be no longer needed due shutdown or fuel switch."<sup>33</sup>

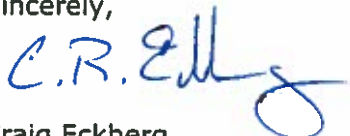
In EPA's 2011 Oklahoma SIP approval, EPA approved a SIP whereby three sources (Georgia Pacific Muskogee Mill, International Paper Valliant Mill and Western Farmers Electric Coop Anadarko Plant) demonstrated a modeled contribution less than 0.5 deciviews, after the implementation of future limits.<sup>34</sup> In the case of Georgia Pacific, the plant accepted a future requirement to discontinue burning fuel oil, and to burn only natural gas. The requirement was embodied in a Title V permit requiring that the fuel switch be operational no more than five years following EPA's final action on the Oklahoma SIP.<sup>35</sup>

A forward-looking approach to the process is consistent with the Act and the Regional Haze Regulation. Only sources that are "reasonably anticipated to cause or contribute to impairment of visibility" are subject to BART.<sup>36</sup>

The timing and conditions of this strategy are important. The Parish Units participate in the competitive ERCOT power market, and Parish is more distant from Class I areas than other market participants. In light of the competitive nature of the market, NRG could not commit to the use of a higher-cost fuel unless and until other market participants were also subject to additional controls or comparable fuel costs.

NRG appreciates your consideration of this information. Please contact me at 832-357-5291 or [craig.eckberg@nrg.com](mailto:craig.eckberg@nrg.com) if you have any questions or require additional information.

Sincerely,



Craig Eckberg  
Director, Environmental Services  
NRG Energy, Inc.

Cc: Mr. David Brymer, Air Quality Division, TCEQ

---

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> 76 Fed. Reg. 16,168, 16,179 (3/22/11)(proposed rule); 76 Fed. Reg. 81,727 (12/28/11)(final rule).

<sup>35</sup> 76 Fed. Reg. 16,168, 16,179 (3/22/11)(proposed rule); 76 Fed. Reg. 81,727 (12/28/11)(final rule).

<sup>36</sup> 42 U.S.C. 7491(b)(2)(A); 40 C.F.R. 51.302(c)(4)(i).

## **ATTACHMENTS**

NRG submits the following two attachments in support of its comments on EPA's Proposed Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan, Docket No. EPA-R06-OAR-2016-0611, 82 Fed. Reg. 912 (January 4, 2017):

- A May, 2017 report prepared by AECOM; and
- A May 4, 2017 report prepared by Sargent & Lundy, submitted as Confidential Business Information.

# Summary of Findings for the Proposed Rule: Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan

Docket ID: USEPA-R06-OAR-2016-0611

## Contents

<b>1.0</b>	<b>Introduction and Executive Summary of Overall Findings .....</b>	<b>1-1</b>
<b>2.0</b>	<b>Modeling Approach.....</b>	<b>2-1</b>
2.1	CAMx Model Approach .....	2-1
2.2	Concurrent Application of CAMx and CALPUFF .....	2-2
2.3	Fatal Flaw: CAMx Modeling Not Adjusted for Bias and Relative Response Factors Not Applied .....	2-3
2.4	Analysis Not Representative of Past, Current, or Future Operations .....	2-5
2.5	USEPA Application of the ENVIRON Protocol .....	2-5
<b>3.0</b>	<b>EGU Emissions .....</b>	<b>3-1</b>
3.1	Baseline Emissions used for BART Screening Modeling.....	3-1
3.1.1	Selection and Determination of SO <sub>2</sub> Emissions Rate .....	3-2
3.1.2	Selection and Determination of NO <sub>x</sub> Emissions Rate .....	3-2
3.1.3	Selection and Determination of PM Emissions Rate.....	3-2
3.2	Comparison of Modeled Emissions to Current Emissions and Trends.....	3-3
<b>4.0</b>	<b>Meteorological Model Performance Evaluation .....</b>	<b>4-1</b>
4.1	MMPE .....	4-1
4.2	CAMx Limitations .....	4-1
4.3	Tracer Studies .....	4-2
<b>5.0</b>	<b>Air Quality Model Performance .....</b>	<b>5-1</b>
5.1	The Role of an Air Quality Model Performance Evaluation .....	5-1
5.2	AQMPE Results .....	5-2
<b>6.0</b>	<b>Post-processing Analysis\Methods.....</b>	<b>6-1</b>
6.1	Processing Method .....	6-1
6.2	Determination and Application of Threshold .....	6-3
6.3	Rule Applicability Compared to Results .....	6-5
<b>7.0</b>	<b>Conclusions .....</b>	<b>7-1</b>
<b>8.0</b>	<b>References.....</b>	<b>8-1</b>

## List of Appendices

### Appendix A - Tracer Studies

## List of Tables

Table 1	Comparison of Facility Stack Parameters and Annual Emission Rates between 2002 and Present Day .....	3-4
Table 2	Comparison of Emission Rates Modeled for the Proposed Texas FIP to Maximum Daily Emissions from 2015-2016 .....	3-5
Table 3	Trends in Texas EGU SO <sub>2</sub> and NO <sub>x</sub> emissions Compared to CSAPR Budget .....	3-7
Table 4	Comparison of USEPA-Modeled Facility Impacts in the Proposed Texas BART FIP (Run 1) and the Texas Reasonable Progress FIP (2018 Base Case) .....	6-2
Table 5	Comparison of USEPA-Modeled Visibility Benefits of the Same Emission Controls (FGD) Under the Proposed Texas BART FIP (2017) Versus the Texas Regional Progress FIP (2016) <sup>1</sup> .....	6-3
Table 6	Sulfate and Nitrate Concentrations that would Individually Exceed 1 and 0.5 delta deciview Thresholds at Selected Class I Areas .....	6-5

## List of Figures

Figure 1	Measured Visibility Conditions at Caney Creek (top) and Wichita Mountains (bottom) from 2000 to 2016.....	2-4
----------	---	-----

## 1.0 Introduction and Executive Summary of Overall Findings

This report provides a technical review of USEPA's modeling procedures that were used by USEPA to develop the Proposed Rule "Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan" (82 Federal Register [FR] 912 Jan. 4, 2017, Docket ID: USEPA-R06-OAR-2016-0611), referred to hereafter as "Proposed Texas BART FIP (2017)." The overall conclusions of this review indicate that the USEPA modeling procedures, which were not provided to the public for review prior to the issuance of the Proposed Texas BART FIP (2017), are severely flawed and cannot be used to support the issuance of a final rule.

Based on the analysis and findings provided throughout this report, the modeling analysis conducted for the Proposed Texas BART FIP (2017) has deficiencies in the selected approach, data inputs, and suitability for the intended purpose. Due to these deficiencies, the results are unreliable and cannot be used as the basis for a final rule. In summary, AECOM has the following significant concerns regarding the modeling conducted by USEPA for the Proposed Texas BART FIP (2017).

First, the model approach used by USEPA has significant flaws, as discussed in Chapter 2.0 of this report. The application of two different models as part of the same regulatory action without a well-reasoned approach (which should be based on current technical justification and guidance, rather than a protocol from ten years ago) leads to inconsistent and indefensible results for the affected facilities. By not using available options for the CAMx model – such as representative emission rates; inclusion of future year conditions; and/or relative response factors – the predicted effectiveness of the proposed controls in the Proposed Texas BART FIP (2017) are over-estimated relative to the real potential benefits. Fundamentally, if the model is intentionally configured in such a way as to not represent the physical world, as USEPA as done in this proposal, the results also cannot be expected to be a reliable indicator of the potential visibility benefits from installation of control technologies.

Second, the modeled emissions used by USEPA have significant flaws, as discussed in Chapter 3.0 of this report. In other recent BART rulemakings, USEPA has used a more recent baseline period to account for emission controls that have already been installed on the sources being modeled. Here, USEPA's modeling uses an outdated emissions baseline of 2000-2004 which does not account for all existing controls at the relevant sources or for units that have been retired. Consequently, the effectiveness of controls in the Proposed Texas BART FIP (2017) are vastly over-estimated relative to the real potential benefits. In addition to the unrealistic baseline period USEPA used for its analysis, USEPA failed to assess and incorporate the seasonal variation of historic emissions when determining the maximum daily emissions to use for a CAMx modeling analysis. Finally, the visibility improvement modeling that USEPA uses in its five-factor BART analysis should not use the maximum daily emissions which are appropriate only to screen out of BART. For any sources Subject to BART, USEPA should have used more typical emissions (with seasonal and diurnal variations) associated with current operations to reflect anticipated emissions and allow for a more accurate assessment of benefits from proposed controls. Finally, the 2002 CAMx model platform used by USEPA is outdated, which results in poor performance of the model.

Third, USEPA does not provide sufficient meteorological or air quality model performance evaluation that can be used to assess the adequacy and reliability of the results, as discussed in Chapters 4.0 and 5.0 of this report. The limited information USEPA has provided regarding the model performance evaluation suggests that the model is not suitable for the analysis and confirms our conclusion that USEPA's results are not reliable. The lack of a valid performance evaluation is a critical flaw since the absolute (i.e., unadjusted) model results are used by USEPA for all model runs in the Proposed Texas BART FIP. What information is available regarding model performance and tracer studies calls into question USEPA's use of maximum impacts instead of the 98th percentile impacts, or other suitable metric (e.g., best or worst 20 percent days), as previously used in BART modeling and the regional haze context.

Thus, the CAMx-predicted visibility impacts that USEPA estimated from individual facilities in the Proposed Texas BART FIP (2017) are likely over-predicted, which would be the case even if the overall air quality model indicates the total concentrations may be under-predicted relative to measurements.

Finally, as discussed in Chapter 6.0 of this report, the methods USEPA used to post-process CAMx results for analysis and its unqualified use of the 0.5 delta deciview threshold in this rulemaking are not appropriate. An analysis of the sulfate or nitrate concentrations that would trigger an exceedance of a 0.5 delta deciview threshold indicate that those concentration levels are below the typical acceptable levels of model bias, casting doubt on the ability for the CAMx model to resolve a single source's impact at the level of accuracy USEPA is using for the Proposed Texas BART FIP. For CAMx screening, USEPA's use of the 100th percentile versus the 98th percentile that USEPA used for CALPUFF is not supported. CAMx has significant over-prediction tendencies for the distances for which it was applied, such that a 98th percentile statistic, or other metric, should be applied to both CALPUFF and CAMx for BART screening. As a final concern, even though the Proposed Texas BART FIP (2017) does not establish emission limits for nitrogen oxides (NO<sub>x</sub>), which are regulated by the Cross State Air Pollution Rule (CSAPR) as a BART alternative, USEPA's assessment of visibility impacts include NO<sub>x</sub> impacts as part of the comparison to the BART screening threshold of 0.5 delta deciviews to justify the sulfur dioxide (SO<sub>2</sub>) limitations in the proposal. Thus, there is a significant internal inconsistency in EPA's proposal.

For all these reasons, AECOM concludes that the modeling results in USEPA's Proposed Texas BART FIP are unreliable, over-predict potential visibility impacts and benefits, conflict with USEPA's prior practice, and cannot reasonably be used as support for a final rule.

**COMMENTS BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND THE  
PUBLIC UTILITY COMMISSION OF TEXAS REGARDING THE PROPOSED STATE OF  
TEXAS REGIONAL HAZE AND INTERSTATE VISIBILITY TRANSPORT FEDERAL  
IMPLEMENTATION PLAN**

**DOCKET ID NO. EPA-R06-OAR-2016-0611**

**I. Summary**

On January 4, 2017, the United States Environmental Protection Agency (EPA) published in the *Federal Register* (82 FR 912) a notice of proposed rulemaking regarding a federal implementation plan (FIP) to implement Best Available Retrofit Technology (BART) under the EPA Regional Haze rule for electric generating units (EGU) in Texas. The EPA is also proposing disapproval of portions of Texas' Regional Haze state implementation plan (SIP) and several other SIP revisions related to interstate visibility transport. The Texas Commission on Environmental Quality (TCEQ) and Public Utility Commission of Texas (PUCT) provide the following comments on this proposed rule.

**II. Comments**

**The TCEQ appreciates the EPA's efforts to work with the TCEQ to resolve concerns with Texas' Regional Haze SIP.**

During the EPA's review of Texas' Regional Haze SIP submittal, the EPA has made a strong effort to engage with the TCEQ to discuss its concerns with the SIP and possible options for resolution. The TCEQ appreciates that EPA's efforts to work with the TCEQ on the Regional Haze SIP. While the TCEQ has significant concerns with the EPA's proposed FIP for BART on EGUs in Texas, the TCEQ hopes this cooperative effort will continue and will ultimately lead to a resolution with an approved Regional Haze SIP for Texas.

**The TCEQ and PUCT disagree with the EPA's interpretation regarding the consideration of energy impacts of compliance in BART analyses.**

The EPA argues that it is not required to consider impacts to grid reliability because it interprets "energy impacts of compliance" as meaning the energy impacts of complying by installing retrofit controls on a source that continues operation (82 FR 937). However, nothing in the BART guidelines prohibits consideration of grid impacts and the guidelines do specifically speak to indirect impacts, including allowing consideration of concerns regarding locally scarce fuels that may be better used for alternative purposes and potential significant economic disruption and unemployment. Additionally, as the EPA itself acknowledges, energy impacts of compliance can include parasitic loads that decrease the available power a source may put to the grid. The EPA has argued in other regulatory contexts that the electrical grid is an interconnected system. What affects the available power generation of one generator affects the system, and a decrease in one power generation source must be offset by an increase in another power generation source. The energy impacts of compliance on an individual source can have a direct impact on the entire system. The EPA's own arguments regarding the interconnected nature of the electrical grid do not support the EPA's interpretation of energy impacts of compliance.

Furthermore, in other guidance on Regional Haze, the EPA states that costs of compliance can be interpreted to encompass the cost of compliance for individual sources or source



categories, and more broadly the implication of compliance costs to the health and vitality of industries within a state (Guidance for Setting Reasonable Progress Goals under the Regional Haze Program June 1, 2007, page 5-1). It is not logical for the EPA to interpret “energy impacts of compliance” so narrowly to exclude impacts to grid reliability when it interprets “costs of compliance” much more broadly.

**The EPA should consider the potential impacts of the proposed FIP on the reliability of the electrical grid in Texas regardless of how the EPA interprets BART analyses.**

The EPA’s proposed FIP affects more than 14,000 megawatts of electrical generating capacity in Texas, yet the EPA did not consider the potential impacts to grid reliability or even consult with the Public Utility Commission of Texas prior to proposing this FIP. In the proposed FIP, the EPA only rationalizes why it is not required to consider energy impacts to the electrical grid in its BART analysis and why the requirements of Presidential Executive Orders 12866 and 13211 don’t apply to this proposal. The federal government’s stated purpose of Executive Order 13211 is to ensure that federal agencies appropriately weigh and consider the effects of the federal government’s regulations on the supply, distribution, and use of energy. As with the previous Regional Haze FIP, because the rule is limited to Texas, the EPA discounts its responsibility to weigh and consider the effects on the wholly-contained electrical grid in Texas and the limited interconnection with the national grid. Regardless of the EPA’s interpretation of “energy impacts of compliance” and executive order requirements, the proposed FIP affects a significant portion of the state’s electrical grid, and consideration should be given to the potential impacts on grid reliability within Texas given its unique grid environment.

Recent studies conducted by The Electric Reliability Council of Texas, Inc. (ERCOT) have shown that units affected by capital-intensive retrofit requirements to comply with the previous Regional Haze FIP are likely to be retired.<sup>1</sup> Additional studies indicate the likelihood of significant transmission reliability impacts if multiple units are retired with limited advance warning to grid planners and market participants.<sup>2</sup> Impacts from the proposed BART rule would likely be consistent with the previous Regional Haze FIP. As such, a consideration of the potential impacts to grid reliability from this rule is appropriate.

**The EPA’s proposed sulfur dioxide (SO<sub>2</sub>) controls for the BART-affected coal-fired power plants represents more control than is necessary to satisfy BART. The EPA should consider an alternate control approach for these BART-affected units using source or system caps.**

The EPA acknowledges in the proposal that the SO<sub>2</sub> reductions from this FIP exceed the reductions assumed under the budget provided to Texas for the CSAPR. Also, the EPA still maintains that the Cross State Air Pollution Rule (CSAPR) is better-than-BART. However, the EPA has not explained why this proposed FIP represents BART for the affected power plants when the proposal results in more SO<sub>2</sub> reductions than the BART-alternative that EPA says is better than BART. In the EPA’s November 2016 proposal to remove Texas from the SO<sub>2</sub> and annual NO<sub>x</sub> CSAPR programs after the D.C. Circuit Court found the budgets to

---

<sup>1</sup> See [http://www.ercot.com/content/wcm/key\\_documents\\_lists/77730/2016\\_LTSA\\_Update\\_6\\_21\\_2016.pptx](http://www.ercot.com/content/wcm/key_documents_lists/77730/2016_LTSA_Update_6_21_2016.pptx)

<sup>2</sup> See Section 4.2.5 and Appendix M of the 2016 ERCOT Regional Transmission Plan, available at: [http://www.ercot.com/content/wcm/lists/89476/2016\\_Regional\\_Transmission\\_Plan\\_-\\_Public\\_Version.zip](http://www.ercot.com/content/wcm/lists/89476/2016_Regional_Transmission_Plan_-_Public_Version.zip)

be illegal over-control, the EPA stated that Texas was one of the states that was expected to have higher SO<sub>2</sub> emissions under the CSAPR scenario (81 FR 78963). The EPA discusses at length why the CSAPR programs are still better than BART in the November 2016 proposal but only states that the BART scenario results in more reductions than the CSAPR scenario without providing any rational explanation why the BART scenario results in more SO<sub>2</sub> reductions than the better-than-BART alternative. Furthermore, Texas is the only state proposed to be removed from the CSAPR SO<sub>2</sub> program as a result of the remand from the D.C. Circuit Court, and the EPA's proposed determination of SO<sub>2</sub> BART in Texas with this FIP would appear to be counter to its determination that CSAPR is better-than-BART. The EPA provides no technical or legal explanation for this disconnect between its Texas-specific proposed BART determination and its continued determination that CSAPR is better-than-BART.

Because the CSAPR level of control is, by the EPA's own determination, better than BART the EPA should have considered an equivalent control level in its BART analysis. For example, a potential alternative is the concept of system-wide emission caps using CSAPR allocations. A SO<sub>2</sub> system-cap approach for BART would be based on establishing a cap on all the BART subject units under common ownership and control based on CSAPR allocations to those specific units. System-wide caps for these BART subject units based on CSAPR allocations would provide flexibility while actually being more stringent than CSAPR because the companies would not have the ability to trade allocations with non-BART facilities or with companies in other states. Furthermore, the EPA has approved system-cap approaches under the TCEQ's Chapter 117 rules for nitrogen oxides (NO<sub>x</sub>). As discussed in other comments below, if such an approach using CSAPR allocations or some other similar variation can be demonstrated to be more stringent than CSAPR itself, then the EPA's CSAPR-is-better-than-BART determination should satisfy some of the demonstration requirements for BART alternatives.

Even if not based on CSAPR allocations, the EPA should consider a source-cap or system-cap approach as an alternative to unit-by-unit rate-based standards. Source- and system-cap strategies achieve equivalent reductions by setting mass-based limits (e.g., ton per day) for a group of units derived from rate-based standards and baseline levels of activity for the units. In this context, the rate-based standards used to set the caps would be the emission rates determined to represent BART. These types of cap approaches allow companies to consider a broader range of alternative strategies. An example of a source-cap-based alternative would be combining a shutdown of one BART unit at a site with a less stringent, more cost-effective control technology on another BART unit at a site. By over-controlling one unit, a lesser degree of reduction on another unit still achieves the same overall reductions compared to both units installing controls to meet the BART rate-based limit. Under a FIP with only unit-by-unit rate-based limits, as proposed by EPA, such an alternative strategy would not be allowed and EPA would have to revise its FIP to allow the company to pursue the alternative. A similar approach using system-caps would provide additional flexibility for companies with BART-subject units at more than one site. Additionally, a system-cap trading program to allow companies to trade with other companies with separate systems would provide additional flexibility and allow companies to take advantage of reductions already occurring at other BART subject facilities. If the EPA is averse to creating a system-cap trading program for a single state, an alternative would be to allow for a state system-cap trading program that would allow companies to trade between systems once the EPA has approved the state program.

**A state should be able to independently rely on EPA's CSAPR-is-better-than-BART determination if the state can demonstrate that a state-only program for EGUs is more stringent than CSAPR.**

While the TCEQ has not proposed any action to implement a Texas-only program for EGUs based in some way on CSAPR as a means of satisfying BART, and these comments in no way represent a commitment to propose such an action, the TCEQ should be able to rely on the EPA's CSAPR-is-better-than-BART determination to satisfy certain aspects of the BART alternative provisions in 30 Code of Federal Regulations (CFR) Part 51, §51.308(e)(2) if such a program can be demonstrated to be more stringent than CSAPR. Specifically, the state should be able to rely on the EPA's determination that CSAPR resulted in greater reasonable progress than source-specific BART to satisfy the requirements of §51.308(e)(2)(i)(E) and (e)(3):

*§51.308(e)(2)(i)(E): A determination under paragraph (e)(3) of this section or otherwise based on the clear weight of evidence that the trading program or other alternative measure achieves greater reasonable progress than would be achieved through the installation and operation of BART at the covered sources.*

*§51.308(e)(3): A State which opts under 40 CFR 51.308(e)(2) to implement an emissions trading program or other alternative measure rather than to require sources subject to BART to install, operate, and maintain BART may satisfy the final step of the demonstration required by that section as follows: If the distribution of emissions is not substantially different than under BART, and the alternative measure results in greater emission reductions, then the alternative measure may be deemed to achieve greater reasonable progress. If the distribution of emissions is significantly different, the State must conduct dispersion modeling to determine differences in visibility between BART and the trading program for each impacted Class I area, for the worst and best 20 percent of days. The modeling would demonstrate "greater reasonable progress" if both of the following two criteria are met:*

- (i) Visibility does not decline in any Class I area, and*
- (ii) There is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas.*

The TCEQ acknowledges that other requirements of §51.308(e)(2) would still need to be satisfied, such as monitoring, recordkeeping, reporting, and provisions for emission trading programs. While the CSAPR option is specifically listed §51.308(e)(4), the EPA's Regional Haze rules do not prohibit a state from relying on EPA's modeling demonstration that CSAPR resulted in greater reasonable progress when using an alternative under §51.308(e)(2). If a state-only program is more stringent than CSAPR, for example a program based on CSAPR allocations but without interstate trading, requiring a state to conduct extensive modeling to demonstrate what the EPA has already demonstrated for a less stringent program is illogical and places an unnecessary and wasteful burden on states.

**The EPA's determination that the SO<sub>2</sub> BART controls are economically feasible and will not result in shutdowns at coal-fired EGUs is contradicted by the EPA's own Integrated Planning Model (IPM) results.**

The EPA proposes the SO<sub>2</sub> BART controls as being economically feasible and claims that it is unable to conclude that the proposed BART controls would severely impact the viability of continued plant operations (82 FR 938). However, the EPA's own IPM predictions appear to contradict the EPA's claims. Table 3-19 for the EPA's most recent IPM v.5.16 base case results (EPA Base Case v.5.16 for 2015 Ozone NAAQS Transport NODA Using IPM, Incremental Documentation, December 2016, pages 59-65) includes BART Regulations and specifically lists Big Brown, Monticello, and Coletto Creek. While the IPM documentation identifies these SO<sub>2</sub> controls as SO<sub>2</sub> BART, other Texas coal-fired EGUs listed on the table include Tolk, Sandow, and Limestone, which are not BART-eligible units but were subject to the EPA's recently stayed Regional Haze Reasonable Progress FIP. While the table may misidentify the applicable regulation as BART, the control level assumed for IPM modeling for Big Brown Units 1 and 2, Monticello Units 1 and 2, and Coletto Creek is the same level that the EPA has proposed for BART purposes. The EPA's 2023 parsed IPM data file for the ozone transport NODA (EPA Docket ID No. EPA-HQ-OAR-2016-0751-0029) specifically lists Big Brown Units 1 and 2, Monticello Units 1 and 2, Coletto Creek as coal retirements by 2023.

Furthermore, while Monticello Units 1 and 2 were mistakenly identified as mothballed units in the prior version of IPM (v.5.15) for the EPA's final Clean Power Plan rule, both Big Brown units and Coletto Creek were identified as continuing active units in the prior IPM base case results (Docket ID No. EPA-HQ-OAR-2016-0602-0219) and in both the rate-based and mass-based 2030 policy case results (Docket ID Nos. EPA-HQ-OAR-2016-0602-36473 and EPA-HQ-OAR-2016-0602-36475) with the Clean Power Plan in place. The more recent v.5.16 version of IPM results, which also includes the Clean Power Plan rule in place despite the rule being stayed by the United States Supreme Court, predicts that these units will cease to be economically viable with the level of SO<sub>2</sub> control applied in the proposed BART FIP.

**The SO<sub>2</sub> BART control levels proposed for Texas' EGUs are inconsistent with and more stringent than SO<sub>2</sub> BART controls implemented or approved by other EPA regions and are not supported by the data the EPA used in determining the control levels, particularly with regard to lignite-fired units.**

With regard to dry flue gas desulfurization (FGD) scrubber control levels, the EPA approved 0.09 pound per million British thermal unit (lb/MMBtu) as BART for the Big Stone unit in South Dakota's Regional Haze SIP (April 26, 2012 *Federal Register*, 77 FR 24848) based on dry scrubber control. Yet, for the two Harrington units, EPA Region 6 proposes 0.06 lb/MMBtu as BART. In response to comments concerning the stringency of the 0.09 lb/MMBtu SO<sub>2</sub> BART limit, EPA Region 8 defended South Dakota's BART determination, stating the following:

*We agree that, in some cases, wet and dry scrubbers can achieve greater emission reductions than those assumed by South Dakota. However, when the sulfur content of the coal is low, a lower control efficiency is anticipated. Due to the very low sulfur content of the coal burned at Big Stone I, on average 0.57%, it is unlikely that the high control efficiencies cited by the commenter could be achieved. South Dakota also provided explanatory information in its response to comments in Appendix E of the SIP that it considered SO<sub>2</sub> inlet concentrations in its estimation of possible control*

*efficiencies. In addition, BART emission limits, which apply at all times, including during startup and shutdown must allow an adequate margin for compliance. Therefore, with regard to the proposed emission limits for dry scrubbers at Big Stone I, we find that South Dakota's limit of 0.09 lb/MMBtu is reasonable for dry scrubbers at the facility, and we are approving it. (77 FR 24848)*

The average SO<sub>2</sub> lb/MMBtu emission rate for the Big Stone prior to the installation of the dry FGD unit was 0.75 lb/MMBtu (average 2005 - 2014). The average SO<sub>2</sub> lb/MMBtu emission rate for the two Harrington units is approximately 0.5 lb/MMBtu over 2005 - 2016, less than the level being achieved by the Big Stone unit, which the EPA determined would be unlikely to be able to achieve high control efficiencies.

Based on BART SO<sub>2</sub> information provided with the supplemental information provided for IPM v.5.16, the proposed SO<sub>2</sub> BART limit of 0.04 lb/MMBtu is more stringent than any other BART level approved or determined by the EPA (Table 3-19, EPA Base Case v.5.16 for 2015 Ozone NAAQS Transport NODA Using IPM, Incremental Documentation, December 2016, pages 59-65). Outside of the EPA's proposed BART FIP for Texas, the most common BART SO<sub>2</sub> limit on a lb/MMBtu basis for wet FGD scrubbed coal-fired units is 0.15 lb/MMBtu, both for retrofits and existing scrubbers, which corresponds to the default BART level recommended in the BART Guidelines (BART Guidelines, Section IV.E.4). The EPA attempts to defend the proposed BART control level of 0.04 lb/MMBtu for wet FGD retrofits based on a selection of retrofits on other units. However, of the units the EPA selected in defending its proposed BART limit, Milton R. Young Unit 1 is the only unit that fires lignite (Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan, BART FIP TSD, Docket ID No. EPA-R06-OAR-2016-0611-004, page 120). Four of the units subject to the EPA's proposed BART retrofit limit of 0.04 lb/MMBtu burn lignite blended with subbituminous coal: Big Brown Units 1 and 2, and Monticello Units 1 and 2. However, the EPA has only included one lignite-fired coal unit in its technical justification of the proposed limit of 0.04 lb/MMBtu. Furthermore, the EPA fails to note in its analysis that Milton R. Young Unit 1 actually routinely exceeds the proposed limit of 0.04 lb/MMBtu after the unit was retrofitted with wet FGD in 2011. The emissions data provided for Milton R. Young Unit 1 by the EPA in the technical support documents (Docket ID No. EPA-R06-OAR-2016-0611-0008, TX187-0008-0033-BOD-Selected BOD SO<sub>2</sub> Averages-3) indicates that from January 1, 2012 to June 30, 2015, the average of all 30 boiler operating day averages was 0.046 lb/MMBtu. Over this time period Milton R. Young Unit 1 exceeded 0.040 lb/MMBtu 62% of the time and exceeded 0.050 lb/MMBtu 47% of the time. Figure 1 below is the emissions trend chart for Milton R. Young Unit 1 from the EPA's technical support document with only minor formatting changes, illustrating the unit's SO<sub>2</sub> emissions exceed the EPA's proposed emission standard for wet FGD retrofits. Additionally, the North Dakota Regional Haze SIP established a SO<sub>2</sub> BART limit for both of the Milton R. Young units based on 95% removal, not the 98% removal assumed by EPA Region 6 in proposing its 0.04 lb/MMBtu limit, and the North Dakota SO<sub>2</sub> BART limits for the Milton R. Young units were approved by EPA Region 8 (77 FR 20929). In responding to comments regarding its approval of the SO<sub>2</sub> BART limits in North Dakota SIP, EPA Region 8 stated the following.

*However, there is very limited data on the performance of wet or dry scrubbers at units firing lignite, such as those in North Dakota. In a 2007 BACT determination for two new lignite-fired boilers at Oak Grove Station in Texas, the Texas Commission on Environmental Quality established an SO<sub>2</sub> emission limit of 0.192 lb/MMBtu on a 30-day rolling average. Based on this, we find that the emission limits established by North Dakota are not unreasonable. (77 FR 20929)*

The EPA also attempts to support its 0.04 lb/MMBtu limit by highlighting three particular units: Scherer Unit 2, Iatan Unit 1, and Boswell Energy Center (Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan, BART FIP TSD, Docket ID No. EPA-R06-OAR-2016-0611-004, page 122). The EPA cites these units as operating at levels of 0.01 to 0.03 lb/MMBtu for sustained periods. However, not only are these units fired with Powder River Basin (PRB) subbituminous coal, only the Boswell Energy Center Unit 3 is a BART-eligible unit.

EPA Region 6 has not justified why its proposed BART determinations for SO<sub>2</sub> control on coal-fired EGUs in Texas are inconsistent with other EPA BART determinations. The proposed SO<sub>2</sub> limit for retrofit wet scrubbers on lignite-fired units is not supported by the EPA's own data provided with the proposed FIP. The EPA should not arbitrarily assume that wet FGD scrubbers on lignite-fired units can achieve the same level of SO<sub>2</sub> emission rate on a lb/MMBtu basis as low-sulfur PRB subbituminous coal-fired units.

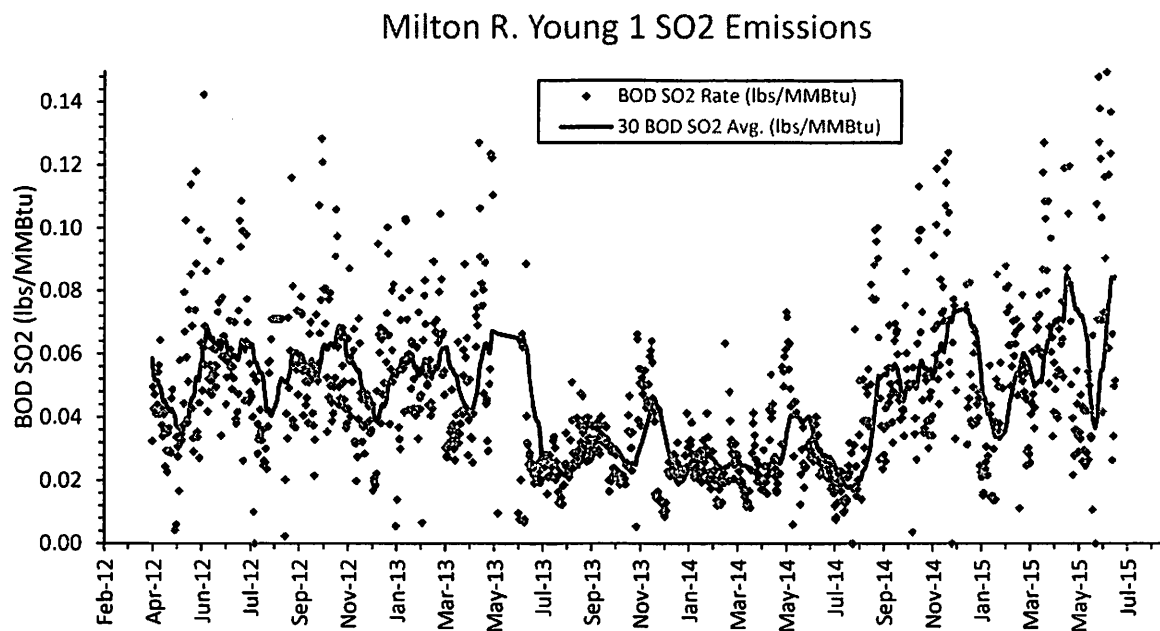


Figure 1: EPA SO<sub>2</sub> Emission Trend Data for Milton R. Young Unit 1 (Source: Docket ID No. EPA-R06-OAR-2016-0611-0008, TX187-0008-0033-BOD-Selected BOD SO<sub>2</sub> Averages-3)

**The retrofit SO<sub>2</sub> BART control levels proposed for Texas' EGUs are more stringent than the EPA's recent New Source Performance Standard (NSPS) for new coal-fired EGUs in 40 CFR Part 60, Subpart Da.**

The EPA's proposed SO<sub>2</sub> standards for retrofit scrubbers of 0.04 lb/MMBtu for wet scrubbers and 0.06 lb/MMBtu for spray dry absorber (SDA) scrubbers are more stringent than the recent NSPS standards for newly constructed, reconstructed, or modified units in 40 CFR Part 60, Subpart Da. The SO<sub>2</sub> standards for units newly or reconstructed after May 3, 2011 under §60.43Da(l)(1) are 1.0 pound per megawatt-hour (lb/MWh) gross energy

output, 1.2 lb/MWh net energy output, or 97% reduction. The SO<sub>2</sub> standards for units modified after May 3, 2011 under §60.43Da(l)(2) are 1.4 pound per megawatt-hour (lb/MWh) gross energy output or 90% reduction. The output-based standards for new or reconstructed units are approximately equivalent to 0.1 lb/MMBtu and the output-based standard for modified units is approximately equivalent to 0.14 lb/MMBtu, significantly higher than either of the retrofit standards proposed by the EPA. The percent reduction assumed by the EPA was 98%, more stringent than the 97% established in the NSPS for new and reconstructed units and significantly more stringent than the 90% for modified units. While the BART Guidelines in Appendix Y to 40 CFR Part 51 do not necessarily bind the EPA to the NSPS standards, the EPA should have considered the NSPS level of control (BART Guidelines, Section IV.D.2). Furthermore, while the EPA notes in footnote 13 to the BART Guidelines that the NSPS does not automatically represent BART, the NSPS standards referred to in footnote 13 were approximately 20 years old at the time the EPA included that note in the BART Guidelines. The NSPS SO<sub>2</sub> limits in §60.43Da(l) were established in February 2012, just five years ago. The EPA discussed the 1971 NSPS for EGUs in the BART FIP Technical Support Document (Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan, BART FIP TSD, Docket ID No. EPA-R06-OAR-2016-0611-004, page 138). However, the EPA provided no discussion of the 2012 NSPS. The EPA has failed to follow its own BART Guidelines or justified why the proposed BART SO<sub>2</sub> control levels for retrofits are more stringent than the recent NSPS SO<sub>2</sub> control levels.

**The EPA did not properly evaluate the emission standards with regard to applying the standards at all times including startup and shutdown operations.**

The EPA's proposed emission standards apply at all times, including startup and shutdown operations. However, the EPA has not given proper consideration to emission spikes that can occur during startup operations that can cause a significant spike in even a 30-boiler operating day average until the startup day rolls out of the 30-day average. The EPA's own emissions trend data provided in the technical support documents demonstrates that such spikes would represent a compliance problem for some of the units that the EPA evaluated in establishing the proposed BART emission standards. Figures 2 and 3 provide examples from the EPA's technical support document with selected 30-boiler operating day average data (Docket ID No. EPA-R06-OAR-2016-0611-0008, TX187-0008-0033-BOD-Selected BOD SO<sub>2</sub> Averages-3) for two units with wet FGD. While all the spikes in the SO<sub>2</sub> emissions trend for Jeffrey Energy Center Unit 3 and James H. Miller Unit 4 may not necessarily be associated with startup operations, the EPA's data demonstrates the significant variation that can occur in SO<sub>2</sub> emission rates even when using a 30-boiler operating day average which the EPA has not accounted for in selecting the proposed emission limits for retrofit scrubbers.

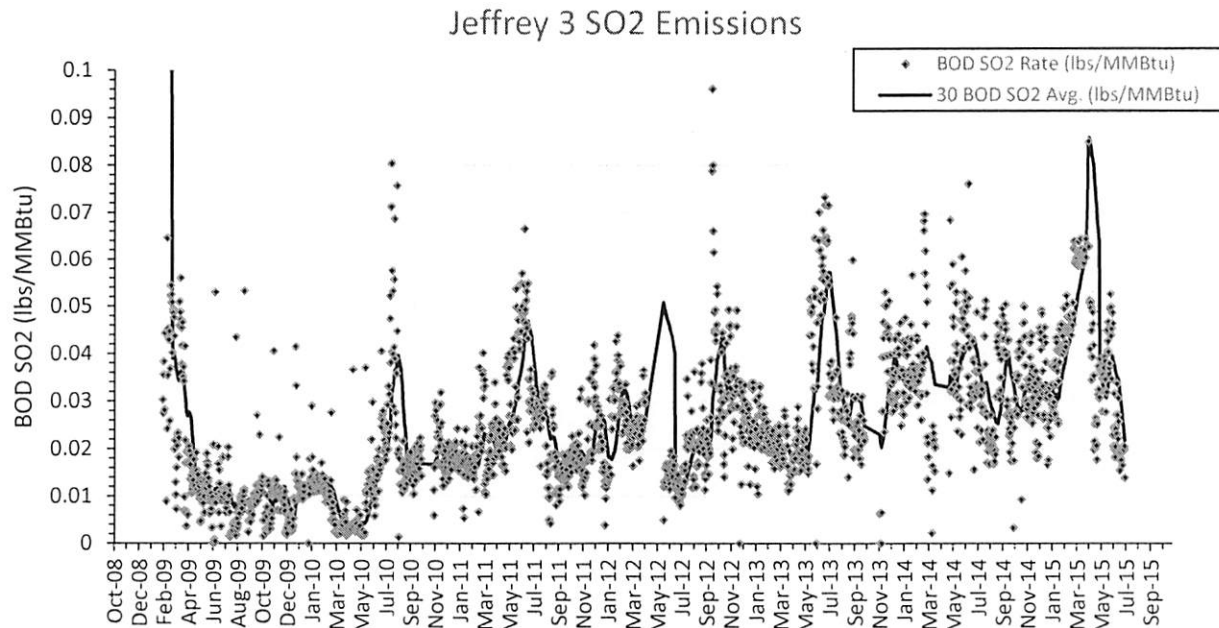


Figure 2: EPA SO<sub>2</sub> Emission Trend Data for Jeffrey Energy Center Unit 3 (Source: Docket ID No. EPA-R06-OAR-2016-0611-0008, TX187-0008-0033-BOD-Selected BOD SO<sub>2</sub> Averages-3)

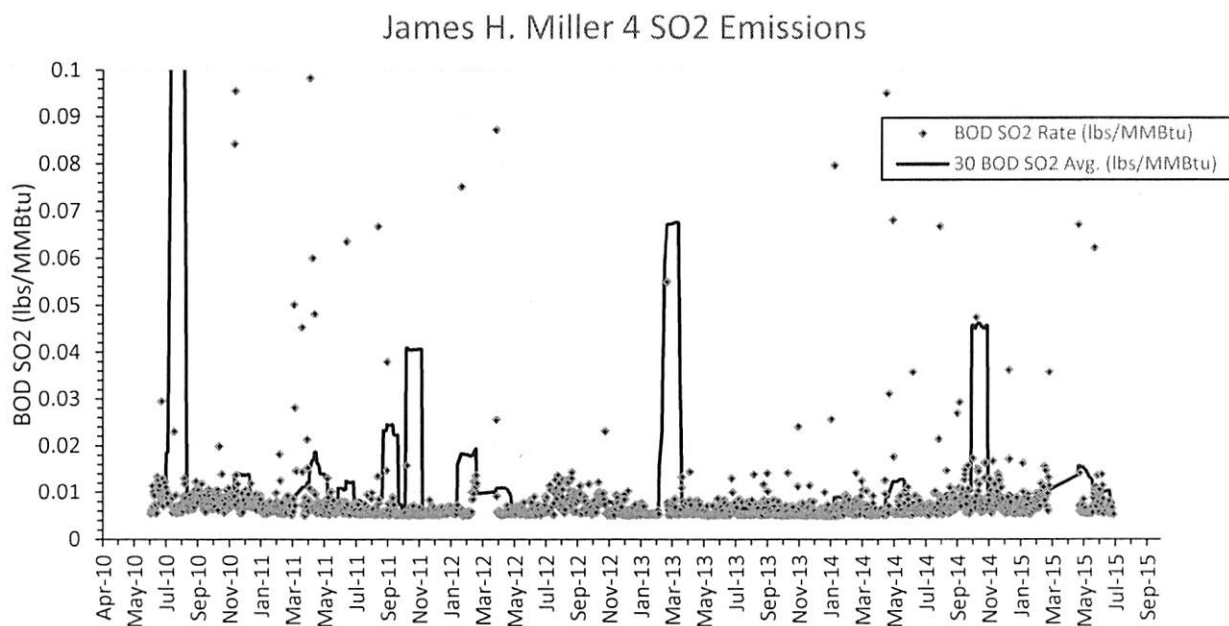


Figure 3: EPA SO<sub>2</sub> Emission Trend Data for James H. Miller Unit 4 (Source: Docket ID No. EPA-R06-OAR-2016-0611-0008, TX187-0008-0033-BOD-Selected BOD SO<sub>2</sub> Averages-3)



**The EPA should reconsider its evaluation of dry sorbent injection (DSI) technology for SO<sub>2</sub> control in the BART analysis.**

For units not currently equipped with SO<sub>2</sub> scrubbers, EPA Region 6 determined that wet FGD scrubbers were BART for most units and SDA represented BART for the two Harrington units. However, the EPA's own cost analysis shows that for some of the units DSI is more cost effective on a dollar per ton SO<sub>2</sub> reduced basis than either wet FGD or SDA scrubbers. Furthermore, while cost effectiveness is an important metric in evaluating the costs of compliance, it is by no mean the sole or determining metric. The capital costs for wet FGD and SDA SO<sub>2</sub> scrubbers are substantially higher than DSI, 10 - 15 times higher in most of the EPA's cost calculations. While DSI may not represent a technologically feasible option for all units subject to BART, the substantial difference in capital costs should be given consideration for units that DSI is feasible. The statutory requirement in FCAA §169A for evaluating BART is to consider the "costs of compliance" not the cost effectiveness of compliance. Capital costs are a more direct indicator of the compliance costs incurred by the affected entity than a dollar per ton of emission reduced metric.

**The EPA's selection of 30 years as the remaining useful life of the BART affected units is arbitrary and overestimated for the affected coal-fired EGUs in Texas. The EPA's overestimated remaining useful life grossly biases the EPA's cost effectiveness calculations for certain emission controls.**

While coal-fired EGUs can remain operational for 60 - 70 years and the affected BART units could theoretically last another 30 years, the EPA's selection of 30 years for the remaining useful life of these units is arbitrary and does not take into consideration the current state of the energy sector and many other factors that will affect how long these units will continue to remain operational. The age of the coal-fired EGUs subject to the EPA's proposed FIP range from 35 to 46 years, which the average being approximately 40 years. EPA's assumed 30 years of remaining useful life assumes these units will remain operational until they are 65 to 76 years old. However, this assumption does not reflect actual operational life data from the United States Department of Energy, Energy Information Administration (EIA). Figure 4 presents the age brackets for operable coal-fired EGUs with over 40 years of operation, based on EIA's 2015 Form EIA-860 data. Less than 5% of the operable fleet in 2015 was greater than 65 years in age.

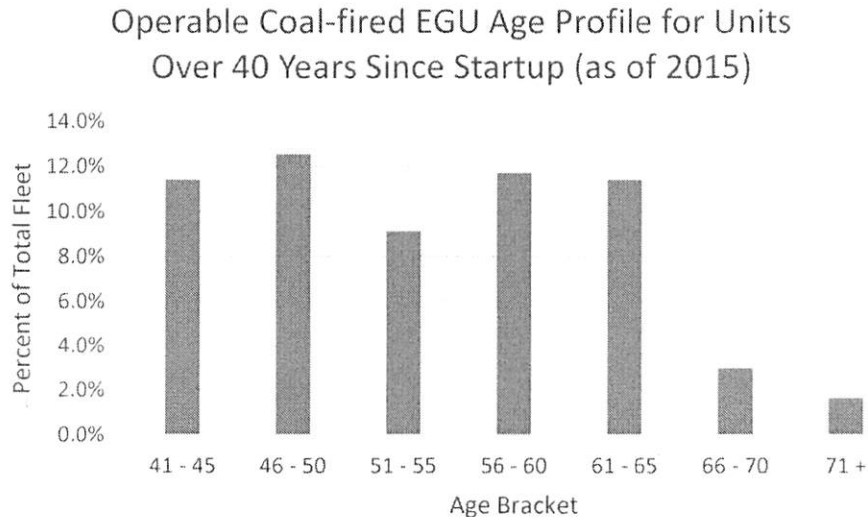


Figure 4: Coal-fired EGU Age Profile (United States Department of Energy, EIA, 2015 Form EIA-860 data).

For units in EIA's 2015 Form EIA-860 data with expected retirement dates, the average expected age at retirement is only 53 years and the median age is 57 years. Based on just the current age profile of the units affected by the EPA's proposed FIP and the EIA information from Form EIA-860, the expected remaining useful life of these units is more likely between 10 - 20 years, not the 30 years assumed by the EPA. Other factors, such as the current energy sector market pressure and other regulatory impacts, could shorten the remaining useful life even further.

Furthermore, the EPA's cost effectiveness calculations of some of the technologies evaluated by the EPA are significantly biased as a result of using a 30-year time for annualizing capital costs. While the cost effectiveness of DSI remains relatively flat over different time periods for remaining useful life due to its relatively low capital costs, cost effectiveness estimates for wet FGD and SDA are significantly impacted by the time period assumed for remaining useful life due to the far higher capital costs associated with those technologies. Figure 5 illustrates the impact of remaining useful life assumed when calculating cost effectiveness on the same technologies evaluated by the EPA using the EPA's same cost estimates. The EPA's cost effectiveness estimates for wet FGD and SDA are severely underestimated as a result of the EPA's artificially high remaining useful life estimate.

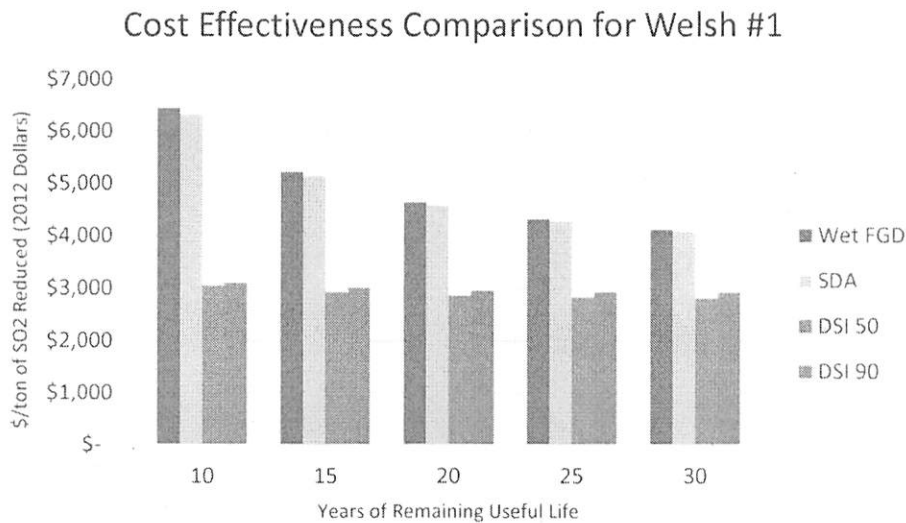


Figure 5: Cost Effectiveness Comparison for Welsh #1

**Averaging times for compliance for the proposed SO<sub>2</sub> and particulate matter (PM) emission limits for coal-fired EGUs should be specified in the rule. The EPA should also clarify the methodology for averaging emissions for compliance.**

The EPA states in the proposed FIP preamble that the SO<sub>2</sub> emission limits are on a 30-boiler operating day basis. However, the actual rule text proposed by the EPA does not include this or any other averaging time for compliance with the SO<sub>2</sub> emission limits. Similarly, the EPA did not include an averaging time for the proposed 0.030 lb/MMBtu filterable PM emission limit. An averaging time must be included in the rule for affected entities to know how to clearly determine and demonstrate compliance with the emission limits. For consistency, the averaging time for the PM BART limit should be the same as the PM surrogate limit in 40 CFR Part 63, Subpart UUUUU, i.e., the Mercury and Air Toxics Standards (MATS) rule, as the MATS rule PM surrogate limit is the basis of the EPA's proposed PM BART limit.

Additionally, in the EPA's technical support document with selected 30-boiler operating day average data (Docket ID No. EPA-R06-OAR-2016-0611-0008, TX187-0008-0033-BOD-Selected BOD SO<sub>2</sub> Averages-3), the EPA averaged using the preceding 30-boiler operating day daily lb/MMBtu values for determining the rolling 30-boiler operating day averages. However, the proposed rule does not specify how emissions are averaged for showing compliance with the SO<sub>2</sub> standard.

**The proposed continuous emissions monitoring system (CEMS) requirements in §52.2287(e)(2) are incomplete and inconsistent with both 40 CFR Part 60, Subpart Da and 40 CFR Part 75 requirements. The EPA should just incorporate by reference the applicable CEMS requirements from either 40 CFR Part 60, Subpart Da or 40 CFR Part 75.**

The CEMS requirements that EPA has proposed in §52.2287(e)(2) are not consistent with other federal SO<sub>2</sub> and diluent monitoring requirements that apply to the affected facilities. Furthermore, §52.2287(e)(2) does not include certification and other quality assurance/quality control (QA/QC) provisions for CEMS. These facilities already have the necessary CEMS installed that are subject to permit and federal requirements for CEMS that would require certification and QA/QC. However, rather than attempt to recreate separate monitoring system provisions for monitoring that are already established under other federal regulations and risk creating conflicts, the EPA should just incorporate by reference the appropriate regulations (e.g., 40 CFR Part 75 monitoring).

**The TCEQ and PUCT disagree with the EPA's assertion that the PM screening analysis for EGUs in the 2009 Regional Haze SIP is "no longer reliable or accurate" because CSAPR can no longer be relied upon as an alternative to source-by-source BART for SO<sub>2</sub> and NO<sub>x</sub>. (82 FR p. 917(3)) The EPA should approve the TCEQ's PM screen modeling for EGUs, as it proposed to do on December 14, 2015.**

The EPA is incorrect when it states that language in a guidance memo (Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations, Joseph Paisie, EPA Geographic Strategies Group, July 19, 2006) absolutely bars a state from conducting pollutant-specific modeling to determining BART eligibility. This memo did not state, as the EPA suggests, that pollutant-specific modeling, as the TCEQ conducted for EGUs, is only appropriate when BART for other pollutants is satisfied with a BART alternative such as the Clean Air Interstate Rule (CAIR) or CSAPR. In fact, the memo says the opposite: that such modeling *may* be appropriate where an alternative program is used for other pollutants. The EPA incorrectly claims that Texas' SIP acknowledges PM-only modeling is inappropriate where an alternative to BART is not employed (Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan, BART FIP TSD, Docket ID No. EPA-R06-OAR-2016-0611-004, page 26, footnote 39). The Texas SIP did not say that. The TCEQ has always acknowledged that EGUs could be subject to BART for SO<sub>2</sub> and NO<sub>x</sub> if CAIR was not upheld or replaced. However, the lack of an alternative does not undermine or render invalid the PM screen modeling conclusions for those EGUs as it pertained to that pollutant.

The EPA's own CAMx modeling shows "that on a source-wide level, impacts from PM emissions on the maximum impacted days from each [coal-fired] source at each Class I area was 3% of the total visibility impairment or less...". This EPA modeling supports the conclusions from the screen modeling conducted by the TCEQ showing these same units did not meet the 0.5 deciview (dv) threshold (Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan, BART FIP TSD, Docket ID No. EPA-R06-OAR-2016-0611-004, page 82). For gas-fired units, the EPA found that PM emissions are "inherently low." (Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan, BART FIP TSD, Docket ID No. EPA-R06-OAR-2016-0611-004, page 83). The additional determination by the EPA that existing controls (baghouses and electrostatic precipitators) plus compliance with the MATS filterable PM limit of 0.03 lb/MMBtu is already BART further supports the TCEQ's conclusion that there are no significant visibility

impacts from PM emissions from these sources and BART controls for PM are therefore unnecessary. Thus, the FIP for PM BART is unnecessary and the EPA should approve the screen modeling the TCEQ conducted, as they proposed to do in December 2015.

**The EPA should document and justify the source of the range of cost-effectiveness estimates that the EPA is claiming to be acceptable for the proposed BART FIP.**

In multiple places of the BART analysis technical support document the EPA states that the cost-effectiveness estimates are within a range that the EPA has previously found to be acceptable (Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan, BART FIP TSD, Docket ID No. EPA-R06-OAR-2016-0611-004). In some cases, the EPA states that the cost-effectiveness was previously found to be acceptable for BART purposes and in some cases the EPA only states that the estimate was previously determined to be acceptable. However, the EPA does not provide any supporting information or citation for this range of acceptable cost-effectiveness that the EPA is using for the proposed BART determinations. The EPA should provide the actual range of acceptable cost-effectiveness it is using and the source of those cost-effectiveness estimates determined to be acceptable. Additionally, if the range of acceptable cost-effectiveness that the EPA is using includes sources other than EGUs or controls installed for purposes other than BART, then the EPA must justify why it is appropriate to apply the acceptability of such cost-effectiveness estimates to BART analyses.

**The EPA has not provided sufficient technical justification for the use of CALPUFF beyond its acceptable range.**

In the proposed FIP and the BART Screening TSD, the EPA has stated that the appropriate maximum distance at which to use CALPUFF is 300 kilometers (km) to approximately 400 km. Yet, the EPA has used CALPUFF to determine visibility impacts up to 436.1 km without providing any technical justification. The EPA has used CALPUFF at a distance greater than 400 km in Method 2 (use of model plants to evaluate visibility impacts).

In the 2005 BART Final Rule, the EPA detailed a possible template for the use of model plants situated to determine visibility impacts of sources that are located at distances greater than the appropriate CALPUFF range. In the supporting study, the example model plants were situated "...at distances 50, 100, and 200 km..." (FR 70, page 39163). Further, the "Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts" specifies the appropriate maximum range to use CALPUFF is 200 km and that CALPUFF could be cautiously used between 200 and 300 km. In 2003 the EPA, as part of revising the "Guideline on Air Quality Models", once again stated that the 200 to 300 km range is appropriate use and that with "Puff Splitting" CALPUFF could be used for distances greater than 300 km (FR 68, page 18441). Given the various performance issues identified with the use of CALPUFF in the EPA's December 2016, "Reassessment of IWAQM Phase 2 Summary Report: Revisions to Phase 2 Recommendations" and the various technical analysis that do not recommend the use of CALPUFF beyond distances greater than 300 km, without proper justification, the EPA's use of CALPUFF at distances greater than 400 km is scientifically unjustifiable.

**The EPA should have screened out the Newman facility based on CALPUFF modeling or used CAMx modeling to quantify the visibility impacts and BART applicability of Newman.**

Although the CALPUFF modeling conducted by the EPA did not show the impacts of the Newman facility to exceed the 0.5 dv threshold, the EPA decided not to screen out the Newman facility due to its location at the outer edge of the CALMET domain. The EPA states that due to its location, CALPUFF will not be able to capture the impacts of Newman's emissions that transport out of the domain and come back into the domain, thereby underestimating Newman's contribution. However, the EPA does not take the next logical step of estimating Newman's visibility impacts using CAMx modeling. Instead, the EPA attempts to show that Newman has impacts greater than 0.5 dv in Class I areas within the modeling domain using direct CALPUFF modeling and, when it fails, it states that the modeling is "inconclusive" and chooses to keep Newman as a BART source without proceeding to the next more comprehensive screening method of using CAMx. The EPA should not arbitrarily state that a source is subject to BART without quantifying its visibility impacts. The EPA should screen out the Newman facility based on CALPUFF modeling or use CAMx to appropriately screen Newman and determine its visibility impacts.

**The natural conditions estimates used by the EPA potentially overestimate the impact of facilities identified as subject to BART and therefore, potentially overstate the estimated benefits of the proposed FIP requirements.**

The Regional Haze Rule (EPA 1999) directs states to work towards the goal of reaching "natural conditions" by 2064. However, the default natural conditions estimates (NCII) used by the EPA in the proposed FIP are inappropriate for south central Class I areas including those in Texas.<sup>3</sup>

The Regional Haze Rule states at 40 CFR § 51.308(d)(2)(iii) that "[f]or each mandatory Class I Federal area located within the State, *the State* must determine the following . . . Natural visibility conditions for the most impaired and least impaired days . . ." [emphasis added]. Using the required methodology, the TCEQ has determined more realistic, refined estimates, approximating 100 percent soil and coarse mass (CM) as natural, for the two Class I areas in Texas are scientifically justified, as opposed to the default NCII estimates used by the EPA or the suggestion by the federal land managers to approximate 80 percent of soil and CM to be natural. These refined site-specific estimates were based on analysis of the conditions and influences affecting Big Bend and Guadalupe Mountains National Parks, rather than an analysis for broad areas of the United States, which was the approach taken by EPA.

Specifically, Class I areas located in West Texas are heavily impacted by large dust storms and windblown dust from the surrounding highly erodible soils. These dust events should be considered when estimating the natural conditions for Class I areas in Texas. As shown in the figure below, the result of including this site-specific information is that the more

---

<sup>3</sup> See Appendix 5-1: Discussion of the Original and Revised Interagency Monitoring of Protected Visual Environments (IMPROVE) Algorithms; Appendix 5-2: Estimate of Natural Visibility Conditions; Appendix 5-2a: Natural Events: Dust Storms in West Texas; Appendix 5-2b: Estimating Natural Conditions Based on Revised IMPROVE Algorithm; Appendix 5-2c: Texas Natural Conditions SAS Program File and Data; see under References - Gillet. al. 2005; Kavouras *et. al.* 2006, 2007.

representative estimates of natural conditions calculated by the TCEQ are higher than the default NCII values used by the EPA.

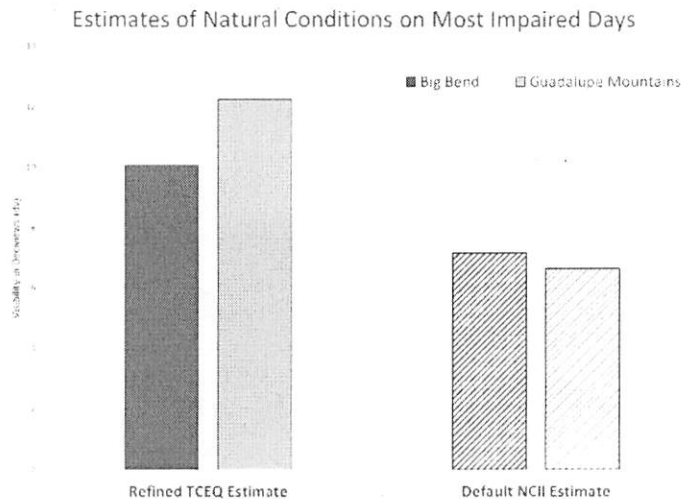


Figure 6: Comparison of Natural Conditions Estimates

The table below was derived by comparing the natural conditions estimates in the TCEQ 2009 SIP and the 2016 Regional Haze FIP for Texas and Oklahoma. These results indicate that the refined estimates of natural conditions developed by the TCEQ lead to *lower* estimates of potential improvement as compared to the default NCII estimates used by the EPA. In essence, the default NCII estimates inflate the reductions required to reach actual natural conditions potential benefits of measures taken under the Regional Haze Rule.

Improvement Needed to Reach Natural Conditions (Extent Baseline Exceeds Natural Visibility Conditions on Most Impaired Days)		
	Refined TCEQ Estimate	Default NCII Estimate
Big Bend	7.21 dv	10.14 dv
Guadalupe Mountains	4.93 dv	10.54 dv

Figure 7: Comparison of Potential Improvement Estimates

The estimates of natural conditions continue to be important in the context of the BART FIP, because the source impacts calculated during the BART screening process are compared against these natural condition estimates to assess the significance of the visibility impacts and the resulting benefits of potential controls. Because the NCII estimates for Class I areas in Texas are too low (as demonstrated in Texas 2009 SIP and described above), resulting benefits identified in EPA's BART FIP are overestimated, which could result in over-control of the identified sources. The TCEQ and PUCT urge the EPA to use the refined, more scientifically justified estimates of natural conditions for Class I areas in Texas provided by the TCEQ in the 2009 Regional Haze SIP.



BRUCE WATZMAN  
*Senior Vice President, Regulatory Affairs*

May 15, 2017

Ms. Samantha K. Davis  
Regulatory Reform Officer and  
Associate Administrator, Office of Policy  
U.S. Environmental Protection Agency  
Mail Code 1803A  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

**Re: National Mining Association Response to Request for Comments on  
Regulations Appropriate for Repeal, Replacement, or Modification Pursuant to  
Executive Order 13777, 82 Fed. Reg. 17,793 (Apr. 13, 2017); Docket ID No. EPA-  
HQ-OAR-2017-0190**

Dear Ms. Davis:

The National Mining Association (NMA) appreciates the opportunity to submit this letter in response to the U.S. Environmental Protection Agency's (EPA) April 13, 2017 *Federal Register* notice "seeking input on regulations that may be appropriate for repeal, replacement, or modification." 82 Fed. Reg. 17,793. Consistent with the directive contained in E.O. 13777, 82 Fed. Reg. 12,285 (Mar. 1, 2017), our review has focused on regulations that: (1) eliminate jobs, or inhibit job creation; (2) are outdated, unnecessary; or ineffective; (3) impose costs that exceed benefits; (4) create a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies; (5) use secret science; and (6) derive from or implement other Presidential directives that have been rescinded or modified.

NMA is a national trade association that includes: the producers of most of the nation's coal, metals, industrial and agricultural minerals, the manufacturers of mining and mineral processing machinery, equipment and supplies, and the engineering and consulting firms, financial institutions and other firms serving the mining industry. Our members supply energy, metals, minerals and materials used by every sector of our economy that are indispensable for the development of technology and products that improve and sustain our way of life. Their interests span the array of regulations EPA has promulgated that impact the production, movement and use of mined products. As



such, our comments address regulations falling under the purview of numerous EPA offices whose actions weigh heavily on the upstream and downstream production and use of mined materials.

At the onset, we want to thank the administration for providing this opportunity for the regulated community to submit recommendations to reform, repeal or modify regulations that impede economic growth and job creation, place unnecessary and unrealistic burdens on our nation's employers, burden domestic energy production and reduce our ability to compete in the global marketplace.

Following are regulations that impose costs which greatly exceed tangible benefits, duplicate other federal or state regulations, lack a sound scientific basis or lack any compelling purpose or need and are inconsistent with the goals of E.O. 13783, Promoting Energy Independence and Economic Growth. We appreciate the opportunity to provide input on this matter and look forward to working with EPA to revise or eliminate these unnecessary regulatory burdens.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce Watzman". The signature is fluid and cursive, with the first name "Bruce" and last name "Watzman" clearly distinguishable.

Bruce Watzman.

**National Mining Association Response to Request for Comments on Regulations  
Appropriate for Repeal, Replacement, or Modification Pursuant to Executive  
Order 13777, 82 Fed. Reg. 17,793 (Apr. 13, 2017)**

Air

1. Regional Haze
2. New Source Review
3. Ozone National Ambient Air Quality Standards
4. 1-Hour PM 2.5 National Ambient Air Quality Standards
5. Cross-State Air Pollution Rule Update
6. Mercury Air Toxic Standards (MATS)
7. Primary NO<sub>2</sub> National Ambient Air Quality Standards
8. National Ambient Air Quality Standards in Elevated Background Environments
9. Grant of Petition for Reconsideration and Stay of 2008 Fugitive Emissions Rule
10. NSPS and NESHAP Requirements and Restrictions for Stationary Engines
11. Greenhouse Gas Mandatory Reporting Rule – Subpart FF
12. Source Determination for Certain Emission Units in the Oil and Natural Gas Sector
13. NSPS provisions as applied to nonroad engines that temporarily replace a stationary engine
14. “Once in, Always” in policy under the NESHAP program
15. Interpretation of NSPS requirements for primary copper smelters
16. NESHAP requirements for primary copper smelters
17. “Common Control” interpretation for stationary source determinations under NSR and Title V operating permits
18. “Contiguous or Adjacent” interpretation for stationary source determinations under NSR and Title V operating permitting programs
19. Reactivation Policy under NSR and Title V operating permitting programs

Water

1. Steam Electric Power Generating Effluent Limitations Guidelines and Standards
2. Draft Conductivity Methodology
3. Selenium Water Quality Criterion and Implementation Guidance
4. Clean Water Act Sec. 404 Guidance Documents
5. Clean Water Act Sec. 402 Guidance Documents
6. Interpretation of CWA Sec. 404(c) Authority
7. NPDES Updates Rule
8. Compensatory Mitigation for Losses of Aquatic Resources
9. Hydrologic Alteration Report
10. Water Quality Standards Regulatory Revisions
11. Drinking Water Standards for Beryllium

## **NMA Regulatory Review Submission**

### Waste

1. Toxics Release Inventory (TRI) Reporting

### Uranium

1. Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings and Uranium in Situ Leaching Processing Facilities
2. National Emissions Standards for Radon Emissions from Operating Mill Tailings

# NMA Regulatory Review Submission

## AIR

### Regional Haze

#### I) Regulation

On January 10, 2017 EPA published a final rule, 82 *Fed. Reg.* 3078, implementing the second long-term strategy to achieve “reasonable progress” toward a national of preventing future, and remedying existing, impairment of visibility in certain nation parks and wilderness areas. The new rule establishes “reasonable progress goals” that states must implement to achieve visibility improvements during the second planning period from 2018-2028.

#### II) Problems with the Regulation

Despite the Clean Air Act’s federalism mandate, the final rule imposes unrealistic reasonable progress goals that limit the discretion afforded states as to how to implement the program. This has resulted in EPA disapproving required State Implementation Plans and alternatively imposing Federal Implementation Plans (FIPs) with more stringent and costly federal emission control requirements. These requirements will, if left unchecked, result in the retirement of several coal-fired electric generating units.

#### III) E.O. 13777 Criteria

The regulation is a candidate for revision under E.O. 13771 as it: (1) imposes excessive costs with dubious benefit, and (2) has inhibited job creation and economic growth. EPA’s preexisting regional haze program resulted in the loss of a significant number of coal-fired electric generating units and the new, revised rule, contains several changes to how EPA will approach regional haze in the future. The agencies decision to impose FIP’s in Texas and Arkansas (stayed and remanded to EPA) threatened a large number of coal facilities and the attendant jobs at mines supplying coal to these units. In Texas, EPA Region VI would have required 7 additional FGD retrofits. In the West, EPA Region VII has elected to require SCR retrofits. The seven units threatened under the Texas FIP are responsible for hundreds of jobs at the mines supplying coal to the generating units. The concern centers on the use of the economic test to require additional retrofit control measures at non-BART coal-fired stations even when the current emission levels are below the glide-path required by the regulation.

Table 1. Annual Oklahoma Human Health Effects and Monetary Valuations  
Associated with the Texas PM<sub>2.5</sub> Air Pollution Avoided by Applying EPA's  
Proposed BART Controls to 9 Texas Coal-Fired Power Plants

<b>Health Endpoint</b>	<b>Expected Number Per Year Avoided*</b>	<b>Total Dollar Valuation (2010\$)**</b>
Respiratory Hospital Admissions (Kloog et al., 2012; Zanobetti et al., 2009)	16 <sup>a</sup>	\$502,000
Cardiovascular Hospital Admissions (Bell et al., 2008; Peng et al., 2008; Peng et al., 2009; Zanobetti et al., 2009)	14 <sup>a</sup>	\$535,000
Acute Bronchitis (Dockery et al., 1996)	112	\$54,000
Acute Myocardial Infarction, Nonfatal (Pope et al., 2006; Sullivan et al., 2005; Zanobetti et al., 2009; Zanobetti & Schwartz, 2006)	9 <sup>b</sup>	\$1,136,000 <sup>a</sup>
Emergency Room Visits (Glad et al., 2012; Mar et al., 2010; Slaughter et al., 2005)	33 <sup>b</sup>	\$14,000 <sup>a</sup>
Asthma Exacerbation Symptoms (Mar et al., 2004; Ostro et al., 2001)	2136 <sup>b</sup>	\$122,000
Upper Respiratory Symptoms (Pope et al., 1991)	2042	\$68,000
Lower Respiratory Symptoms (Schwartz and Neas, 2000)	1432	\$30,000
Minor Restricted Activity Days (Ostro & Rothschild, 1989)	56082	\$3,827,000
Work Days Lost (Ostro et al., 1987)	9410	\$1,320,000
Chronic Bronchitis (Abbey et al., 1995)	48	\$13,671,000
Mortality, All Causes (Krewski et. al, 2009)	78	\$750,023,000
Mortality, All Causes (Lepeule et. al, 2012)	177	\$1,703,397,000
Mortality, All Causes (Laden et al., 2007)	202	\$1,945,871,000

## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Parts 52 and 97

[EPA–R06–OAR–2016–0611; FRL–9969–07–Region 6]

### Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** Pursuant to the Federal Clean Air Act (CAA or Act), the Environmental Protection Agency (EPA) is finalizing a partial approval of the 2009 Texas Regional Haze State Implementation Plan (SIP) submission and a Federal Implementation Plan (FIP) for Texas to address certain outstanding requirements. Specifically, the EPA is finalizing determinations regarding best available retrofit technology (BART) for electric generating units (EGUs) in the State of Texas. To address the BART requirement for sulfur dioxide (SO<sub>2</sub>), the EPA is finalizing an alternative to BART that consists of an intrastate trading program addressing the SO<sub>2</sub> emissions from certain EGUs. To address the BART requirement for oxides of nitrogen (NO<sub>x</sub>), we are finalizing our proposed determination that Texas' participation in the Cross-State Air Pollution Rule's (CSAPR) trading program for ozone-season NO<sub>x</sub> qualifies as an alternative to BART. We are approving Texas' determination that its EGUs are not subject to BART for particulate matter (PM). Finally, we are disapproving portions of several SIP revisions submitted to satisfy the CAA requirement to address interstate visibility transport for six national ambient air quality standards (NAAQS): 1997 8-hour ozone, 1997 fine particulate matter (PM<sub>2.5</sub>) (annual and 24-hour), 2006 PM<sub>2.5</sub> (24-hour), 2008 8-hour ozone, 2010 1-hour nitrogen dioxide (NO<sub>2</sub>) and 2010 1-hour SO<sub>2</sub>. We are finding that the BART alternatives to address SO<sub>2</sub> and NO<sub>x</sub> BART at Texas' EGUs meet the interstate visibility transport requirements for these NAAQS.

**DATES:** This final rule is effective on November 16, 2017.

**ADDRESSES:** The EPA has established a docket for this action under Docket ID No. EPA–R06–OAR–2016–0611. All documents in the docket are listed on the <http://www.regulations.gov> Web site. Although listed in the index, some information is not publicly available,

e.g., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute therefore is not posted to [regulations.gov](http://www.regulations.gov). Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available either electronically through <http://www.regulations.gov> or in hard copy at EPA Region 6, 1445 Ross Avenue, Suite 700, Dallas, Texas 75202–2733.

**FOR FURTHER INFORMATION CONTACT:** Michael Feldman at [Feldman.Michael@epa.gov](mailto:Feldman.Michael@epa.gov) or 214–665–9793

**SUPPLEMENTARY INFORMATION:** Throughout this document wherever “we,” “us,” or “our” is used, we mean the EPA.

### Table of Contents

- I. Background
  - A. Regional Haze
  - B. Interstate Transport of Pollutants That Affect Visibility
  - C. Previous Actions Related to Texas Regional Haze
- II. Our Proposed Actions
  - A. Regional Haze
  - B. Interstate Transport of Pollutants That Affect Visibility
- III. Summary of Our Final Decisions
  - A. Regional Haze
    1. BART-Eligible Units
    2. Subject-to-BART Sources
    3. SO<sub>2</sub> BART
    4. PM BART
    5. NO<sub>x</sub> BART
  - B. Interstate Transport of Pollutants That Affect Visibility
  - C. Reasonable Progress
- IV. Summary and Analysis of Major Issues Raised by Commenters
  - A. Comments on Relying on CSAPR for SO<sub>2</sub> BART or Developing an Intrastate SO<sub>2</sub> Trading Program
  - B. Comments on Source-Specific BART
  - C. Comments on EPA's Proposed SIP Disapprovals
  - D. Legal Comments
  - E. Comments on Identification of BART-Eligible Sources
  - F. Comments on PM BART
  - G. Comments on EPA's Source-Specific SO<sub>2</sub> BART Cost Analyses
  - H. Comments on EPA's Modeling
  - I. Comments on Affordability and Grid Reliability
- V. SO<sub>2</sub> Trading Program and Its Implications for Interstate Visibility Transport, EGU BART, and Reasonable Progress
  - A. Background on CSAPR as an Alternative to BART Concept
  - B. Texas SO<sub>2</sub> Trading Program
    1. Identification of Sources Participating in the Trading Program
    2. Texas SO<sub>2</sub> Trading Program as a BART Alternative
  - C. Specific Texas SO<sub>2</sub> Trading Program Features
- VI. Final Action

## VII. Statutory and Executive Order Reviews

### I. Background

#### A. Regional Haze

Regional haze is visibility impairment that is produced by a multitude of sources and activities that are located across a broad geographic area and emit PM<sub>2.5</sub> (e.g., sulfates, nitrates, organic carbon (OC), elemental carbon (EC), and soil dust), and its precursors (e.g., SO<sub>2</sub>, NO<sub>x</sub>, and, in some cases, ammonia (NH<sub>3</sub>) and volatile organic compounds (VOCs)). Fine particle precursors react in the atmosphere to form PM<sub>2.5</sub>, which impairs visibility by scattering and absorbing light. Visibility impairment reduces the clarity, color, and visible distance that can be seen. PM<sub>2.5</sub> can also cause serious health effects and mortality in humans and contributes to environmental effects, such as acid deposition and eutrophication.

Data from the existing visibility monitoring network, the “Interagency Monitoring of Protected Visual Environments” (IMPROVE) monitoring network, show that visibility impairment caused by air pollution occurs virtually all the time at most national parks and wilderness areas. In 1999, the average visual range<sup>1</sup> in many Class I areas (i.e., national parks and memorial parks, wilderness areas, and international parks meeting certain size criteria) in the western United States was 100–150 kilometers, or about one-half to two-thirds of the visual range that would exist without anthropogenic air pollution. In most of the eastern Class I areas of the United States, the average visual range was less than 30 kilometers, or about one-fifth of the visual range that would exist under estimated natural conditions.<sup>2</sup> CAA programs have reduced some haze-causing pollution, lessening some visibility impairment and resulting in partially improved average visual ranges.<sup>3</sup>

CAA requirements to address the problem of visibility impairment are continuing to be addressed and implemented. In Section 169A of the 1977 Amendments to the CAA, Congress created a program for protecting visibility in the nation's national parks and wilderness areas. This section of the CAA establishes as a national goal the prevention of any future, and the remedying of any

<sup>1</sup> Visual range is the greatest distance, in kilometers or miles, at which a dark object can be viewed against the sky.

<sup>2</sup> 64 FR 35715 (July 1, 1999).

<sup>3</sup> An interactive “story map” depicting efforts and recent progress by EPA and states to improve visibility at national parks and wilderness areas may be visited at: <http://arcg.is/29tAbS3>.

existing man-made impairment of visibility in 156 national parks and wilderness areas designated as mandatory Class I Federal areas.<sup>4</sup> On December 2, 1980, EPA promulgated regulations to address visibility impairment in Class I areas that is “reasonably attributable” to a single source or small group of sources, *i.e.*, “reasonably attributable visibility impairment.”<sup>5</sup> These regulations represented the first phase in addressing visibility impairment. EPA deferred action on regional haze that emanates from a variety of sources until monitoring, modeling, and scientific knowledge about the relationships between pollutants and visibility impairment were improved.

Congress added section 169B to the CAA in 1990 to address regional haze issues, and we promulgated regulations addressing regional haze in 1999.<sup>6</sup> The Regional Haze Rule revised the existing visibility regulations to integrate into the regulations provisions addressing regional haze impairment and established a comprehensive visibility protection program for Class I areas. The requirements for regional haze, found at 40 CFR 51.308 and 51.309, are included in our visibility protection regulations at 40 CFR 51.300–51.309. The requirement to submit a regional haze SIP applies to all 50 states, the District of Columbia, and the Virgin Islands. States were required to submit the first implementation plan addressing regional haze visibility impairment no later than December 17, 2007.<sup>7</sup>

Section 169A of the CAA directs states to evaluate the use of retrofit controls at certain larger, often uncontrolled, older stationary sources in order to address visibility impacts from

these sources. Specifically, section 169A(b)(2)(A) of the CAA requires states to revise their SIPs to contain such measures as may be necessary to make reasonable progress toward the natural visibility goal, including a requirement that certain categories of existing major stationary sources<sup>8</sup> built between 1962 and 1977 procure, install and operate the “Best Available Retrofit Technology” (BART). Larger “fossil-fuel fired steam electric plants” are included among the BART source categories. Under the Regional Haze Rule, states are directed to conduct BART determinations for “BART-eligible” sources that may be anticipated to cause or contribute to any visibility impairment in a Class I area. The evaluation of BART for EGUs that are located at fossil-fuel-fired power plants having a generating capacity in excess of 750 megawatts must follow the “Guidelines for BART Determinations Under the Regional Haze Rule” at appendix Y to 40 CFR part 51 (hereinafter referred to as the “BART Guidelines”). Rather than requiring source-specific BART controls, states also have the flexibility to adopt an emissions trading program or alternative program as long as the alternative provides greater reasonable progress towards improving visibility than BART. 40 CFR 51.308(e)(2) specifies how a state must conduct the demonstration to show that an alternative program will achieve greater reasonable progress than the installation and operation of BART. 40 CFR 51.308(e)(2)(i)(E) requires a determination under 40 CFR 51.308(e)(3) or otherwise based on the clear weight of evidence that the trading program or other alternative measure achieves greater reasonable progress than would be achieved through the installation and operation of BART at the covered sources. Specific criteria for determining if an alternative measure achieves greater reasonable progress than source-specific BART are set out in 40 CFR 51.308(e)(3). Finally, 40 CFR 51.308(e)(4) states that states participating in CSAPR need not require BART-eligible fossil fuel-fired steam electric plants to install, operate, and maintain BART for the pollutant covered by CSAPR.

Under section 110(c) of the CAA, whenever we disapprove a mandatory SIP submission in whole or in part, we are required to promulgate a FIP within two years unless the state corrects the

deficiency and we approve the new SIP submittal.

#### *B. Interstate Transport of Pollutants That Affect Visibility*

Section 110(a) of the CAA directs states to submit a SIP that provides for the implementation, maintenance, and enforcement of each NAAQS, which is commonly referred to as an infrastructure SIP. Among other things, CAA section 110(a)(2)(D)(i)(II) requires that SIPs contain adequate provisions to prohibit interference with measures required to protect visibility in other states. This is referred to as “interstate visibility transport.” SIPs addressing interstate visibility transport are due to the EPA within three years after the promulgation of a new or revised NAAQS (or within such shorter period as we may prescribe). A state’s failure to submit a complete, approvable SIP for interstate visibility transport creates an obligation for the EPA to promulgate a FIP to address this requirement.

#### *C. Previous Actions Related to Texas Regional Haze*

On March 31, 2009, Texas submitted a regional haze SIP to the EPA that included reliance on Texas’ participation in the Clean Air Interstate Rule (CAIR) as an alternative to BART for SO<sub>2</sub> and NO<sub>x</sub> emissions from EGUs.<sup>9</sup> This reliance was consistent with the EPA’s regulations at the time that Texas developed its regional haze plan,<sup>10</sup> but at the time that Texas submitted this SIP to the EPA, the D.C. Circuit had remanded CAIR (without vacatur).<sup>11</sup> The court left CAIR and our CAIR FIPs in place in order to “temporarily preserve the environmental values covered by CAIR” until we could, by rulemaking, replace CAIR consistent with the court’s opinion. The EPA promulgated CSAPR, a revised multi-state trading program to replace CAIR, in 2011<sup>12</sup> (and revised it in 2012<sup>13</sup>). CSAPR established FIP requirements for a number of states, including Texas, to address the states’ interstate transport obligation under CAA section 110(a)(2)(D)(i)(I). CSAPR requires affected EGUs in these states to

<sup>9</sup> CAIR required certain states, including Texas, to reduce emissions of SO<sub>2</sub> and NO<sub>x</sub> that significantly contribute to downwind nonattainment of the 1997 NAAQS for fine particulate matter and ozone. See 70 FR 25152 (May 12, 2005).

<sup>10</sup> See 70 FR 39104 (July 6, 2005).

<sup>11</sup> See *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008), modified, 550 F.3d 1176 (D.C. Cir. 2008).

<sup>12</sup> 76 FR 48207 (Aug. 8, 2011).

<sup>13</sup> CSAPR was amended three times in 2011 and 2012 to add five states to the seasonal NO<sub>x</sub> program and to increase certain state budgets. 76 FR 80760 (December 27, 2011); 77 FR 10324 (February 21, 2012); 77 FR 34830 (June 12, 2012).

<sup>4</sup> Areas designated as mandatory Class I Federal areas consist of National Parks exceeding 6,000 acres, wilderness areas and national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. 42 U.S.C. 7472(a). In accordance with section 169A of the CAA, EPA, in consultation with the Department of Interior, promulgated a list of 156 areas where visibility is identified as an important value. 44 FR 69122 (November 30, 1979). The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. 42 U.S.C. 7472(a). Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to “mandatory Class I Federal areas.” Each mandatory Class I Federal area is the responsibility of a “Federal Land Manager.” 42 U.S.C. 7602(i). When we use the term “Class I area” in this action, we mean a “mandatory Class I Federal area.”

<sup>5</sup> 45 FR 80084 (Dec. 2, 1980).

<sup>6</sup> 64 FR 35714 (July 1, 1999), codified at 40 CFR part 51, subpart P (Regional Haze Rule).

<sup>7</sup> See 40 CFR 51.308(b). EPA’s regional haze regulations require subsequent updates to the regional haze SIPs. 40 CFR 51.308(g)–(i).

<sup>8</sup> See 42 U.S.C. 7491(g)(7) (listing the set of “major stationary sources” potentially subject-to-BART).



participate in the CSAPR trading programs and establishes emissions budgets that apply to the EGUs' collective annual emissions of SO<sub>2</sub> and NO<sub>x</sub>, as well as seasonal emissions of NO<sub>x</sub>. Following issuance of CSAPR, the EPA determined that CSAPR would achieve greater reasonable progress towards improving visibility than would source-specific BART in CSAPR states.<sup>14</sup> We revised the Regional Haze Rule to allow states that participate in CSAPR to rely on participation in the trading programs in lieu of requiring EGUs in the state to install BART controls.

In the same action that EPA determined that states could rely on CSAPR to address the BART requirements for EGUs, EPA issued a limited disapproval of a number of states' regional haze SIPs, including the 2009 SIP submittal from Texas, due to the states' reliance on CAIR, which had been replaced by CSAPR.<sup>15</sup> The EPA did not immediately promulgate a FIP to address the limited disapproval of Texas' regional haze SIP in order to allow more time for the EPA to assess the remaining elements of the 2009 Texas SIP submittal. In December 2014, we proposed an action to address the remaining regional haze obligations for Texas.<sup>16</sup> In that action, we proposed, among other things, to rely on CSAPR to satisfy the NO<sub>x</sub> and SO<sub>2</sub> BART requirements for Texas' EGUs; we also proposed to approve the portions of the SIP addressing PM BART requirements for the state's EGUs. Before that rule was finalized, however, the D.C. Circuit issued a decision on a number of challenges to CSAPR, denying most claims, but remanding the CSAPR emissions budgets of several states to the EPA for reconsideration, including the Phase 2 SO<sub>2</sub> and seasonal NO<sub>x</sub> budget for Texas.<sup>17</sup> Due to potential impacts of the remanded budgets on the EPA's 2012 determination that CSAPR would provide for greater reasonable progress than BART, we did not finalize our decision to rely on CSAPR to satisfy the SO<sub>2</sub> and NO<sub>x</sub> BART requirements for Texas EGUs.<sup>18</sup> Additionally, because our proposed action on the PM BART provisions for EGUs was dependent on how SO<sub>2</sub> and NO<sub>x</sub> BART were satisfied, we did not take final action on the PM BART elements of Texas' regional haze SIP. In January 2016, we finalized action on the remaining aspects of the

December 2014 proposal. That rulemaking was challenged, however, and in December 2016, following the submittal of a request by the EPA for a voluntary remand of the parts of the rule under challenge, the Fifth Circuit Court of Appeals remanded the rule in its entirety.<sup>19</sup>

On October 26, 2016, the EPA finalized an update to CSAPR to address the interstate transport requirements of CAA section 110(a)(2)(D)(i)(I) with respect to the 2008 ozone NAAQS (CSAPR Update).<sup>20</sup> The EPA also responded to the D.C. Circuit's remand of certain CSAPR seasonal NO<sub>x</sub> budgets in that action. As to Texas, the EPA withdrew Texas's seasonal NO<sub>x</sub> budget finalized in CSAPR to address the 1997 ozone NAAQS. However, in that same action, the EPA promulgated a FIP with a revised seasonal NO<sub>x</sub> budget for Texas to address the 2008 ozone NAAQS.<sup>21</sup> Accordingly, Texas remains subject to the CSAPR seasonal NO<sub>x</sub> requirements.

On November 10, 2016, in response to the D.C. Circuit's remand of Texas's CSAPR SO<sub>2</sub> budget, we proposed to withdraw the FIP provisions requiring EGUs in Texas to participate in the CSAPR trading programs for annual emissions of SO<sub>2</sub> and NO<sub>x</sub>.<sup>22</sup> We also proposed to reaffirm that CSAPR continues to provide for greater reasonable progress than BART following our actions taken to address the D.C. Circuit's remand of several CSAPR emissions budgets. On September 21, 2017, we finalized the withdrawal of the FIP provisions for annual emissions of SO<sub>2</sub> and NO<sub>x</sub> for EGUs in Texas<sup>23</sup> and affirmed our proposed finding that the EPA's 2012 analytical demonstration remains valid and that participation in CSAPR as it now exists meets the Regional Haze Rule's criteria for an alternative to BART.

## II. Our Proposed Actions

### A. Regional Haze

On January 4, 2017, we proposed a FIP to address the BART requirements for Texas' EGUs. In that action, we proposed to replace Texas' reliance on CAIR with reliance on CSAPR to address the NO<sub>x</sub> BART requirements for EGUs.<sup>24</sup> This portion of our proposal was based on the CSAPR Update and

our separate November 10, 2016 proposed finding that the EPA's actions in response to the D.C. Circuit's remand would not adversely impact our 2012 demonstration that participation in CSAPR meets the Regional Haze Rule's criteria for alternatives to BART.<sup>25</sup> We noted that we could not finalize this portion of our proposed FIP unless and until we finalized our proposed finding that the set of actions taken by the EPA in response to the D.C. Circuit's remand of certain CSAPR budgets would not adversely impact our prior determination that CSAPR provides for greater reasonable progress than BART. As noted in section I.C, on September 21, 2017, we finalized our proposed finding that EPA's 2012 analytical demonstration remains valid and that participation in CSAPR as it now exists meets the Regional Haze Rule's criteria for an alternative to BART.

Also as noted in section I.C, as part of our November 10, 2016 proposed action in response to the D.C. Circuit's remand of Texas' SO<sub>2</sub> CSAPR budget, we also proposed to withdraw the FIP provisions requiring EGUs in Texas to participate in the CSAPR trading programs for annual emissions of SO<sub>2</sub> and NO<sub>x</sub>.<sup>26</sup> In our January 4, 2017 proposed action on BART requirements for Texas EGUs, we accordingly proposed that because Texas would no longer be participating in the CSAPR program for SO<sub>2</sub>, and thus would no longer be eligible to rely on participation in CSAPR as an alternative to source-specific EGU BART for SO<sub>2</sub> under 40 CFR 51.308(e)(4), our regional haze FIP would need to include the identification of BART-eligible EGU sources, screening of sources to identify subject-to-BART sources, and source-by-source determinations of SO<sub>2</sub> BART controls as appropriate. For those EGU sources we proposed to find subject to BART, we proposed to promulgate source-specific SO<sub>2</sub> requirements. We also proposed to disapprove Texas' BART determinations for PM from EGUs. In place of these determinations, we proposed to promulgate source-specific PM BART requirements for EGUs that we proposed to find subject to BART. Previously, we proposed to approve the EGU BART determinations for PM in the Texas regional haze SIP and this proposal has never been withdrawn.<sup>27</sup> At that time, CSAPR was an appropriate alternative for SO<sub>2</sub> and NO<sub>x</sub> BART for EGUs. The Texas Regional Haze SIP included a pollutant-specific screening analysis for PM to

<sup>19</sup> *Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016).

<sup>20</sup> 81 FR 74504 (Oct. 26, 2016).

<sup>21</sup> 81 FR 74504, 74524–25.

<sup>22</sup> 81 FR 78954.

<sup>23</sup> Texas continues to participate in CSAPR for ozone season NO<sub>x</sub>. See final action signed September 21, 2017 available at [regulations.gov](http://regulations.gov) in Docket No. EPA-HQ-OAR-2016-0598.

<sup>24</sup> 82 FR 912, 914–15 (Jan. 4, 2017).

<sup>25</sup> 81 FR 74504 (Nov. 10, 2016).

<sup>26</sup> 81 FR 78954.

<sup>27</sup> 79 FR 74817, 74853–54 (Dec. 16, 2014).

<sup>14</sup> 77 FR 33641 (June 7, 2012).

<sup>15</sup> *Id.*

<sup>16</sup> 79 FR 74818 (Dec. 16, 2014).

<sup>17</sup> *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118, 132 (D.C. Cir. 2015).

<sup>18</sup> 81 FR 296 (Jan. 5, 2016).



demonstrate that Texas EGUs were not subject to BART for PM. In a 2006 guidance document,<sup>28</sup> the EPA stated that pollutant-specific screening can be appropriate where a state is relying on a BART alternative to address both NO<sub>x</sub> and SO<sub>2</sub> BART.

### *B. Interstate Transport of Pollutants That Affect Visibility*

In our January 5, 2016 final action<sup>29</sup> we disapproved the portion of Texas' SIP revisions intended to address interstate visibility transport for six NAAQS, including the 1997 8-hour ozone and 1997 PM<sub>2.5</sub>.<sup>30</sup> That rulemaking was challenged, however, and in December 2016, following the submittal of a request by the EPA for a voluntary remand of the parts of the rule under challenge, the Fifth Circuit Court of Appeals remanded the rule in its entirety without vacatur.<sup>31</sup> In our January 4, 2017 proposed action we proposed to reconsider the basis of our prior disapproval of Texas' SIP revisions addressing interstate visibility transport under CAA section 110(a)(2)(D)(i)(II) for six NAAQS. We proposed that Texas' SIP submittals addressing interstate visibility transport for the six NAAQS were not approvable because they relied solely on Texas' 2009 Regional Haze SIP to ensure that emissions from Texas did not interfere with required measures in other states. Texas' Regional Haze SIP, in turn, relied on the implementation of CAIR as an alternative to EGU BART for SO<sub>2</sub> and NO<sub>x</sub>.<sup>32</sup> We proposed a FIP to fully address Texas' interstate visibility transport obligations for: (1) 1997 8-hour ozone, (2) 1997 PM<sub>2.5</sub> (annual and 24-hour), (3) 2006 PM<sub>2.5</sub> (24-hour), (4) 2008 8-hour ozone, (5) 2010 1-hour NO<sub>2</sub> and (6) 2010 1-hour SO<sub>2</sub>. The proposed FIP was based on our finding that our proposed action to fully address the BART requirements for Texas EGUs was adequate to ensure that emissions from Texas do not interfere with measures to protect visibility in nearby states in

accordance with CAA section 110(a)(2)(D)(i)(II).

### **III. Summary of Our Final Decisions**

#### *A. Regional Haze*

When we finalized a limited disapproval of Texas' 2009 regional haze SIP for its reliance on CAIR participation as a BART alternative, we did not immediately finalize a CSAPR-better-than-BART FIP for Texas, as we had proposed for Texas and ultimately finalized for twelve other states. Instead of finalizing a CSAPR-better-than-BART FIP for Texas, the EPA acknowledged that we needed more time to assess the Texas regional haze SIP in regard to aspects other than its reliance on CAIR as an alternative to BART.<sup>33</sup> As the EPA has continued to assess how best to address the regional haze obligations for Texas, Texas has not submitted a SIP revision to address the prior disapproval, so the EPA has a remaining obligation to address BART requirements for Texas EGUs.

After assessing how we should address BART for Texas EGUs, we believe that our initial 2011 proposal, to treat Texas like other similarly situated CSAPR states, was an appropriate and regionally consistent approach. As discussed above, in 2014, we proposed that CSAPR would satisfy the NO<sub>x</sub> and SO<sub>2</sub> BART requirements for Texas EGUs.<sup>34</sup> However, we did not finalize this part of the 2014 proposal in the action taken on January 5, 2016.<sup>35</sup> Given EPA's response to the D.C. Circuit remand of certain CSAPR emission budgets, we can no longer rely on CSAPR for Texas' SO<sub>2</sub> BART requirements. Based on comments we received in response to our January 2017 proposal, and giving particular weight to the views expressed by Texas, we are finalizing various determinations to ensure satisfaction of the BART requirement for EGUs in Texas. Of particular note, in making our final decision for the SO<sub>2</sub> BART requirement for EGUs, we centered our focus on a timely comment letter received from the Texas Commission on Environmental Quality (TCEQ) and the Public Utility Commission of Texas (PUC). This comment urged us to consider as a BART alternative the concept of

emission caps using CSAPR allocations. We also received similar comments from Luminant and American Electric Power (AEP). Based upon the comments, we are proceeding to address the SO<sub>2</sub> BART requirement for EGUs under a BART alternative. The EPA finds that, because this BART alternative will result in SO<sub>2</sub> emissions from Texas EGUs that will be similar to emissions anticipated under CSAPR, the alternative is an appropriate approach for addressing Texas' SO<sub>2</sub> BART obligations.

Specifically, the BART alternative is justified "based on the clear weight of the evidence" that the alternative achieves greater reasonable progress than would be achieved through BART. See 40 CFR 51.308(e)(2)(i)(E). The program is designed to accomplish environmental and visibility results by achieving emission levels that will be the same as or better than the emission levels that would have been obtained by state participation in the interstate CSAPR program as finalized and amended in 2011 and 2012, which EPA first deemed to be better than BART for NO<sub>x</sub> and SO<sub>2</sub> in a 2012 regulatory action.<sup>36</sup> The TCEQ and EPA recently signed a memorandum of agreement (MOA) to work together to develop a SIP revision addressing interstate visibility transport requirements and BART requirements for EGUs with a BART alternative trading program starting from CSAPR as allowed under the Regional Haze Rule (40 CFR 51.308(e)).<sup>37</sup> Texas envisions that the FIP measures that serve to satisfy this BART requirement will be replaced by a future SIP submission following the approach described in the MOA that may be approved as meeting the requirements of the CAA and the Regional Haze Rule. EPA policy consistently favors that states will exercise their SIP authority to avoid need for promulgation and continued implementation of measures under FIP authority. In the absence of a SIP to address the SO<sub>2</sub> BART requirement for Texas EGUs, however, EPA finds it necessary to address the requirement under its FIP authority, and the details of how this is addressed and the accompanying justification are further discussed below under Section III.A.3, "SO<sub>2</sub> BART."

<sup>28</sup> See discussion in Memorandum from Joseph Paisie to Kay Prince, "Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations," July 19, 2006.

<sup>29</sup> 81 FR 296 (Jan. 5, 2016).

<sup>30</sup> Specifically, we previously disapproved the relevant portion of these Texas' SIP submittals: April 4, 2008: 1997 8-hour Ozone, 1997 PM<sub>2.5</sub> (24-hour and annual); May 1, 2008: 1997 8-hour Ozone, 1997 PM<sub>2.5</sub> (24-hour and annual); November 23, 2009: 2006 24-hour PM<sub>2.5</sub>; December 7, 2012: 2010 NO<sub>2</sub>; December 13, 2012: 2008 8-hour Ozone; May 6, 2013: 2010 1-hour SO<sub>2</sub> (Primary NAAQS). 79 FR 74818, 74821; 81 FR 296, 302.

<sup>31</sup> *Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016).

<sup>32</sup> *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118, 133–34 (D.C. Cir. 2015) (holding that SIPs based on CAIR were unapprovable to fulfill good neighbor obligations).

<sup>33</sup> 77 FR 33641, 33654 (June 7, 2012).

<sup>34</sup> 79 FR 74817, 74823 (December 16, 2014) ("We propose to replace Texas' reliance on CAIR to satisfy the BART requirement for EGUs with reliance on CSAPR."). This part of the 2014 proposal was not finalized in the action taken on January 5, 2016, that has since been remanded by the Fifth Circuit Court of Appeals. 81 FR 295.

<sup>35</sup> Final action taken on January 5, 2016, that has since been remanded by the Fifth Circuit Court of Appeals. 81 FR 295.

<sup>36</sup> 77 FR 33641 (June 7, 2012).

<sup>37</sup> See Memorandum of Agreement Between the Texas Commission on Environmental Quality and the Environmental Protection Agency Regarding a State Implementation Plan to Address Certain Regional Haze and Interstate Visibility Transport Requirements Pursuant to Sections 110 and 169A of the Clean Air Act, Signed August 14, 2017.

The Regional Haze Rule requires that SIP or FIP measures be in place to ensure that BART is satisfied for all subject-to-BART EGUs and all haze-causing pollutants. For ease of summarization, we will detail the relevant final decisions for each of the haze-causing pollutants: PM, NO<sub>x</sub>, and SO<sub>2</sub>.<sup>38</sup> In our final decisions today, the relevant BART requirement for all BART-eligible coal-fired units and a number of BART-eligible gas- or gas/fuel oil-fired units will be encompassed by BART alternatives for NO<sub>x</sub> and SO<sub>2</sub> such that we do not deem it necessary to finalize subject-to-BART findings for these EGUs for these pollutants. The remaining BART-eligible EGUs not covered by the SO<sub>2</sub> BART alternative have been determined to be not subject to BART based on the methodologies utilizing model plants and CALPUFF modeling as described in our proposed rule and BART Screening technical support document (TSD). Therefore, we are approving the portion of the Texas Regional Haze SIP that addresses the BART requirement for EGUs for PM, we are relying upon Texas EGUs' continued participation in the CSAPR program to serve as a BART alternative for NO<sub>x</sub>, and we are promulgating an intrastate trading FIP to address the SO<sub>2</sub> BART requirements for EGUs.

#### 1. BART-Eligible Units

BART-eligible sources are those sources which have the potential to emit 250 tons per year or more of a visibility-impairing air pollutant, which were "in existence" on August 7, 1977 but not "in operation" before August 7, 1962, and whose operations fall within one or more of 26 specifically listed source categories.<sup>39</sup> As discussed in detail in our proposal and the BART FIP TSD, our analysis of BART-eligible EGUs started with the list of BART-eligible sources provided by TCEQ in the 2009 Texas Regional Haze SIP. Based on additional information from potential BART-eligible sources and the U.S. Energy Information Administration (EIA), we converted Texas' facility-specific BART-eligible EGU list to a unit-specific BART-eligible EGU list, eliminated those units that have retired, and verified the BART-eligibility of each remaining unit. We noted in our proposal that Texas' list omitted some sources that we had identified as BART-eligible. We are finalizing the identification of BART-eligible units as proposed. A "BART-eligible source" is

the collection of BART-eligible units at a facility. Table 1 shows the list of EGUs in Texas that are BART-eligible:

TABLE 1—SUMMARY OF BART-ELIGIBLE UNITS

Facility	Unit
Barney M. Davis (Talen/Topaz) .....	1.
Big Brown (Luminant) .....	1.
Big Brown (Luminant) .....	2.
Cedar Bayou (NRG) .....	CBY1.
Cedar Bayou (NRG) .....	CBY2.
Coletto Creek (Dynegy <sup>40</sup> ) .....	1.
Dansby (City of Bryan) .....	1.
Decker Creek (Austin Energy) .....	1.
Decker Creek (Austin Energy) .....	2.
Fayette (LCRA) .....	1.
Fayette (LCRA) .....	2.
Graham (Luminant) .....	2.
Greens Bayou (NRG) .....	5.
Handley (Exelon) .....	3.
Handley (Exelon) .....	4.
Handley (Exelon) .....	5.
Harrington Station (Xcel) .....	061B.
Harrington Station (Xcel) .....	062B.
J T Deely (CPS Energy) .....	1.
J T Deely (CPS Energy) .....	2.
Jones Station (Xcel) .....	151B.
Jones Station (Xcel) .....	152B.
Knox Lee Power Plant (AEP) .....	5.
Lake Hubbard (Luminant) .....	1.
Lake Hubbard (Luminant) .....	2.
Lewis Creek (Entergy) .....	1.
Lewis Creek (Entergy) .....	2.
Martin Lake (Luminant) .....	1.
Martin Lake (Luminant) .....	2.
Martin Lake (Luminant) .....	3.
Monticello (Luminant) .....	1.
Monticello (Luminant) .....	2.
Monticello (Luminant) .....	3.
Newman (El Paso Electric) .....	2.
Newman (El Paso Electric) .....	3.
Newman (El Paso Electric) .....	4.
Nichols Station (Xcel) .....	143B.
O W Sommers (CPS Energy) .....	1.
O W Sommers (CPS Energy) .....	2.
Plant X (Xcel) .....	4.
Powerlane (City of Greenville) .....	ST1.
Powerlane (City of Greenville) .....	ST2.
Powerlane (City of Greenville) .....	ST3.
R W Miller (Brazos Elec. Coop) .....	1.
R W Miller (Brazos Elec. Coop) .....	2.
R W Miller (Brazos Elec. Coop) .....	3.
Sabine (Entergy) .....	2.
Sabine (Entergy) .....	3.
Sabine (Entergy) .....	4.
Sabine (Entergy) .....	5.
Sim Gideon (LCRA) .....	1.
Sim Gideon (LCRA) .....	2.
Sim Gideon (LCRA) .....	3.
Spencer (City of Garland) .....	4.
Spencer (City of Garland) .....	5.
Stryker Creek (Luminant) .....	ST2.
Trinidad (Luminant) .....	6.
Ty Cooke (City of Lubbock) .....	1.
Ty Cooke (City of Lubbock) .....	2.
V H Braunig (CPS Energy) .....	1.
V H Braunig (CPS Energy) .....	2.

<sup>40</sup> Dynegy purchased the Coletto Creek power plant from Engie in February, 2017. Note that Coletto Creek may still be listed as being owned by Engie in some of our supporting documentation which was prepared before that sale.

TABLE 1—SUMMARY OF BART-ELIGIBLE UNITS—Continued

Facility	Unit
V H Braunig (CPS Energy) .....	3.
WA Parish (NRG) .....	WAP4.
WA Parish (NRG) .....	WAP5.
WA Parish (NRG) .....	WAP6.
Welsh Power Plant (AEP) .....	1.
Welsh Power Plant (AEP) .....	2.
Wilkes Power Plant (AEP) .....	1.
Wilkes Power Plant (AEP) .....	2.
Wilkes Power Plant (AEP) .....	3.

#### 2. Subject-to-BART Sources

As discussed elsewhere, it is unnecessary to finalize the subject-to-BART determinations for BART-eligible sources that are covered by the BART alternatives for SO<sub>2</sub> and NO<sub>x</sub>. The BART alternatives cover both BART-eligible and non-BART eligible sources. This combination provides for greater reasonable progress than source-specific BART. Even if a unit were individually found to not be subject to BART, its participation in the BART alternative contributes to the finding that the program provides greater reasonable progress than BART. We note that all BART-eligible EGUs in Texas are either covered by the BART alternative or have screened out of being subject to BART. The section below that discusses our final SO<sub>2</sub> BART determination lists those units covered by the BART alternative program and identifies which of those units are BART-eligible. As discussed in section III.A.4 below, we are approving the portion of the 2009 Texas Regional Haze SIP that determined that no PM BART determinations are needed for BART-eligible EGUs in Texas.

For those BART-eligible EGUs that are not covered by the BART alternative for SO<sub>2</sub>, we are finalizing determinations that those EGUs are not subject-to-BART for NO<sub>x</sub>, SO<sub>2</sub> and PM as proposed, based on the methodologies utilizing model plants and CALPUFF modeling as described in our proposed rule and BART Screening TSD.

The following sources are determined to be BART-eligible, but not subject-to-BART:

TABLE 2—SOURCES DETERMINED TO BE BART-ELIGIBLE BUT NOT SUBJECT-TO-BART FOR NO<sub>x</sub>, SO<sub>2</sub>, AND PM

Facility	Units
Barney M. Davis (Talen/Topaz) .....	1.
Cedar Bayou (NRG) .....	CBY1 & CBY2.
Dansby (City of Bryan) .....	1.

<sup>38</sup> In this action, we did not consider VOCs and ammonia among visibility-impairing pollutants for several reasons, as discussed in the TSD.

<sup>39</sup> 40 CFR 51.301.

TABLE 2—SOURCES DETERMINED TO BE BART-ELIGIBLE BUT NOT SUBJECT-TO-BART FOR NO<sub>x</sub>, SO<sub>2</sub>, AND PM—Continued

Facility	Units
Decker Creek (Austin Energy).	1 & 2.
Greens Bayou (NRG) .....	5.
Handley (Exelon) .....	3, 4 & 5.
Jones (Xcel) .....	151B & 152B.
Knox Lee (AEP) .....	5.
Lake Hubbard (Luminant) ..	1 & 2.
Lewis Creek (Entergy) .....	1 & 2.
Nichols Station (Xcel) .....	143B.
Plant X (Xcel) .....	4.
Powerlane (City of Greenville).	ST1, ST2 & ST3.
R W Miller (Brazos Elec. Coop).	1, 2 & 3.
Sabine (Entergy) .....	2, 3, 4 & 5.
Sim Gideon (LCRA) .....	1, 2 & 3.
Spencer (City of Garland)	4 & 5.
Trinidad (Luminant) .....	6.
Ty Cooke (City of Lubbock)	1 & 2.

TABLE 2—SOURCES DETERMINED TO BE BART-ELIGIBLE BUT NOT SUBJECT-TO-BART FOR NO<sub>x</sub>, SO<sub>2</sub>, AND PM—Continued

Facility	Units
V H Braunig (CPS Energy)	1, 2 & 3.
3. SO <sub>2</sub> BART	
The BART alternative will achieve SO <sub>2</sub> emission levels that are functionally equivalent to those projected for Texas' participation in the original CSAPR program. The BART alternative applies the CSAPR allowance allocations for SO <sub>2</sub> to all BART-eligible coal-fired EGUs, several additional coal-fired EGUs, and several BART-eligible gas-fired and gas/fuel oil-fired EGUs. In addition to being a sufficient alternative to BART, it secures reductions consistent with visibility	

transport requirements and is part of the long-term strategy to meet the reasonable progress requirements of the Regional Haze Rule.

The combination of the source coverage for this program, the total allocations for EGUs covered by the program, and recent and foreseeable emissions from EGUs not covered by the program will result in future EGU emissions in Texas that are similar to the SO<sub>2</sub> emission levels forecast in the 2012 better-than-BART demonstration for Texas EGU emissions assuming CSAPR participation. In line with the comment from the TCEQ/PUC, we are finalizing a BART alternative that will encompass the SO<sub>2</sub> BART requirements for coal-fired EGUs and a number of gas- and gas/fuel oil-fired EGUs under a program that will include the sources in the following table. See Section V.B for a discussion on identification of participating sources.

TABLE 3—TEXAS EGUS SUBJECT TO THE FIP SO<sub>2</sub> TRADING PROGRAM

Owner/operator	Units	BART-eligible
AEP .....	Welsh Power Plant Unit 1 .....	Yes.
	Welsh Power Plant Unit 2 .....	Yes.
	Welsh Power Plant Unit 3 .....	No.
	H W Pirkey Power Plant Unit 1 .....	No.
	Wilkes Unit 1 * .....	Yes.
	Wilkes Unit 2 * .....	Yes.
	Wilkes Unit 3 * .....	Yes.
CPS Energy .....	JT Deely Unit 1 .....	Yes.
	JT Deely Unit 2 .....	Yes.
	Sommers Unit 1 * .....	Yes.
	Sommers Unit 2 * .....	Yes.
Dynegy .....	Coletto Creek Unit 1 .....	Yes.
LCRA .....	Fayette/Sam Seymour Unit 1 .....	Yes.
	Fayette/Sam Seymour Unit 2 .....	Yes.
Luminant .....	Big Brown Unit 1 .....	Yes.
	Big Brown Unit 2 .....	Yes.
	Martin Lake Unit 1 .....	Yes.
	Martin Lake Unit 2 .....	Yes.
	Martin Lake Unit 3 .....	Yes.
	Monticello Unit 1 .....	Yes.
	Monticello Unit 2 .....	Yes.
	Monticello Unit 3 .....	Yes.
	Sandow Unit 4 .....	No.
	Stryker ST2 * .....	Yes.
	Graham Unit 2 * .....	Yes.
NRG .....	Limestone Unit 1 .....	No.
	Limestone Unit 2 .....	No.
	WA Parish Unit WAP4 * .....	Yes.
	WA Parish Unit WAP5 .....	Yes.
	WA Parish Unit WAP6 .....	Yes.
	WA Parish Unit WAP7 .....	No.
Xcel .....	Tolk Station Unit 171B .....	No.
	Tolk Station Unit 172B .....	No.
	Harrington Unit 061B .....	Yes.
	Harrington Unit 062B .....	Yes.
	Harrington Unit 063B .....	No.
El Paso Electric .....	Newman Unit 2 * .....	Yes.
	Newman Unit 3 * .....	Yes.
	Newman Unit 4 * .....	Yes.

\* Gas-fired or gas/fuel oil-fired units.



This BART alternative includes all BART-eligible coal-fired units in Texas, additional coal-fired EGUs, and some additional BART-eligible gas and gas/fuel oil-fired units. Moreover, we believe that the differences in source coverage between CSAPR and this BART alternative are either not significant or, in fact, work to demonstrate the relative stringency of the BART alternative as compared to CSAPR (See Section V of this preamble for detailed information). This relative stringency can be understood in reference to the following points:

A. Covered sources under the BART alternative in this FIP represent 89%<sup>41</sup> of all SO<sub>2</sub> emissions from all Texas EGUs in 2016, and approximately 85% of CSAPR allocations for existing units in Texas.

B. The remaining 11% (100 minus 89) of 2016 emissions from sources not covered by the BART alternative come from gas units that rarely burn fuel oil or coal-fired units that on average are better controlled for SO<sub>2</sub> than the covered sources and generally are less relevant to visibility impairment. (A fuller discussion of this point is provided in Section V of this preamble.) As such, any shifting of generation to non-covered sources, as might occur if a covered source reduces its operation in order to remain within its SO<sub>2</sub> emissions allowance allocation, would result in less emissions to generate the same amount of electricity.

C. Furthermore, the non-inclusion of a large number of gas-fired units that rarely burn fuel oil reduces the amount of available allowances for units that would typically and collectively be expected to use only a fraction of CSAPR emissions allowances. Many of these sources typically emit at levels much lower than their allocation level. Sources not participating in the program may choose to opt in, thereby increasing the number of available allowances. This will serve to make the program more closely resemble CSAPR.

D. The BART alternative does not allow purchasing of allowances from out-of-state sources. Emission projections under CAIR and CSAPR showed that Texas sources were anticipated to purchase allowances from out-of-state sources.<sup>42</sup>

Based on these points, and borrowing to the greatest extent possible from the

rules and program design of CSAPR, but applying them for Texas only, we are proceeding with the commenters', including the State of Texas', suggested consideration for SO<sub>2</sub> BART coverage for EGUs by means of a BART alternative under an intrastate trading program. As with any FIP, we also would welcome Texas submitting a future SIP, as discussed in the MOA, that meets the Regional Haze Rule and the Act's requirements so as to enable future withdrawal of this FIP-based BART alternative.<sup>43</sup>

In 2014 we had originally proposed that CSAPR would satisfy the SO<sub>2</sub> BART requirement for Texas EGUs.<sup>44</sup> Although we never finalized that proposal, functionally, the final decision relies on substantially the same technical elements. In contrast to the 2014 proposal, however, we are not finalizing this SO<sub>2</sub> BART alternative as meeting the terms of 40 CFR 51.308(e)(4), as amended, because that regulatory provision, by its terms, provides BART coverage for pollutants covered by the CSAPR trading program in the State but on September 21, 2017, EPA finalized its proposed action to remove Texas from the CSAPR SO<sub>2</sub> trading program.<sup>45</sup> Instead we are relying on the BART alternative option provided under 40 CFR 51.308(e)(2). The BART alternative being finalized today is supported by our determination that the clear weight of the evidence is that the trading program achieves greater reasonable progress than BART. The BART alternative is designed to achieve SO<sub>2</sub> emission levels from Texas sources similar to the SO<sub>2</sub> emission levels that would have been achieved under CSAPR. By a quantitative and qualitative assessment of the operation of the BART alternative, we are able to conclude that emission levels will be on average no greater than the emission levels from Texas EGUs that would have been realized from the SO<sub>2</sub> trading program under CSAPR. (See Section V of this preamble for detailed information). Accordingly, by the measure of CSAPR better than BART,

the SO<sub>2</sub> BART FIP for Texas' BART-eligible EGUs participating in the trading program will achieve greater reasonable progress than BART with respect to SO<sub>2</sub>. BART-eligible EGUs not participating in the program are demonstrated to not cause or contribute to visibility impairment, and we are finalizing our determination in this action that these units are not subject to BART.

The Regional Haze Rule at 40 CFR 51.308(e)(2)(iii) requires that the emission reductions from BART alternatives occur "during the period of the first long-term strategy for regional haze." The SO<sub>2</sub> BART alternative that EPA is finalizing here will be implemented beginning in January 2019, and thus emission reductions needed to meet the allowance allocations must take place by the end of 2019. For the purpose of evaluating Texas's BART alternative, the end of the first planning period of the first long-term strategy for Texas is 2021. This is a result of recent changes to the regional haze regulation, revising the requirement for states to submit revisions to their long-term strategy from 2018 to 2021.<sup>46</sup> Therefore, the emission reductions from the Texas SO<sub>2</sub> trading program will be realized prior to that date and within the period of Texas' first long-term strategy for regional haze.

In promulgating the regulatory terms and rules for implementing the BART alternative, we are mindful of the minimally required elements for a BART alternative emissions trading program that are specified in the provisions of 40 CFR 51.308(e)(2)(vi)(A)–(L). In general, these types of provisions are foundational, in a generic sense, to the establishment of allowance markets. CSAPR is a prominent example of such an allowance market, and by transferring and generally incorporating program rules and terms from the well-tested provisions of CSAPR we have ensured that the BART alternative will conform in detail and coverage to the breadth of provisions that are needed for an emissions trading program covered by a cap (See Section V of this preamble for additional discussion). To the extent that Texas would submit a future SIP revision under its SIP authority to implement SO<sub>2</sub> BART or an SO<sub>2</sub> BART alternative for its EGUs as described in the MOA to meet the Regional Haze Rule and CAA requirements, it may look to the provisions promulgated under FIP authority or it may examine its flexibilities and the extent of its

<sup>41</sup> In 2016, 218,291 tons of SO<sub>2</sub> were emitted from sources included in the program and 27,446 tons from other EGUs (11.1%).

<sup>42</sup> See CAIR 2018 emission projections of approximately 350,000 tons SO<sub>2</sub> emitted from Texas EGUs compared to CAIR budget for Texas of 225,000 tons. See section 10 of the 2009 Texas Regional Haze SIP.

<sup>43</sup> See Memorandum of Agreement Between the Texas Commission on Environmental Quality and the Environmental Protection Agency Regarding a State Implementation Plan to Address Certain Regional Haze and Interstate Visibility Transport Requirements Pursuant to Sections 110 and 169A of the Clean Air Act, signed August 14, 2017.

<sup>44</sup> 79 FR 74817, 74823 (December 16, 2014) ("We propose to replace Texas' reliance on CAIR to satisfy the BART requirement for EGUs with reliance on CSAPR."). This part of the 2014 proposal was not finalized in the action taken on January 5, 2016, that has since been remanded by the Fifth Circuit Court of Appeals. 81 FR 295.

<sup>45</sup> See final action signed September 21, 2017 available at [regulations.gov](https://www.regulations.gov) in Docket No. EPA–HQ–OAR–2016–0598.

<sup>46</sup> 82 FR 3078 (Jan. 10, 2017).

discretion regarding essential provisions detailed at 40 CFR 51.308(e)(2)(vi).

#### 4. PM BART

In our January 2017 proposal, we proposed to disapprove Texas' technical evaluation and determination that PM BART emission limits are not required for any of Texas' EGUs. The Texas Regional Haze SIP included a pollutant-specific screening analysis for PM to demonstrate that Texas EGUs were not subject to BART for PM. This approach was consistent with a 2006 guidance document<sup>47</sup> in which the EPA stated that pollutant-specific screening can be appropriate where a state is relying on a BART alternative to address both NO<sub>x</sub> and SO<sub>2</sub> BART. Because we proposed to address SO<sub>2</sub> BART on a source-specific basis, however, Texas' pollutant-specific screening was not appropriate and we proposed source-specific PM BART emission limits consistent with existing practices and controls. In this final action, we are not finalizing source-specific SO<sub>2</sub> BART determinations. Instead, for the majority of Texas' BART-eligible EGUs, we are relying on BART alternatives for both SO<sub>2</sub> and NO<sub>x</sub> emissions. Therefore, we now conclude that Texas' pollutant-specific screening analysis was appropriate. All of the BART-eligible sources participating in the intrastate trading program have visibility impacts from PM alone below the subject-to-BART threshold of 0.5 deciviews (dv).<sup>48</sup> Furthermore, the BART-eligible sources not participating in the intrastate trading program screened out of BART for all visibility impairing pollutants. As such, we are approving the portion of the Texas Regional Haze SIP that determined that PM BART emission limits are not required for any Texas EGUs.

As we explained in the January 2017 proposal, the Texas Regional Haze SIP did not evaluate PM impacts from all BART-eligible EGUs. We have evaluated and determined this omission does not affect Texas' conclusion that no BART-eligible EGUs should be subject-to-BART for PM emissions. In our proposal, we identified several facilities as BART-eligible that Texas did not identify as BART eligible in the Texas Regional Haze SIP. Specifically, we identified the following additional

BART-eligible sources: Coletto Creek Unit 1 (Dynergy), Dansby Unit 1 (City of Bryan), Greens Bayou Unit 5 (NRG), Handley Units 3,4, and 5 (Excelon), Lake Hubbard Units 1 and 2 (Luminant), Plant X Unit 4 (Xcel), Powerlane Units ST1, ST2, and ST3 (City of Greenville), R W Miller Units 1, 2, and 3 (Brazos Elec.), Spencer Units 4 and 5 (City of Garland), and Stryker Creek Unit ST2 (Luminant). In our proposal, we used CALPUFF modeling and a model-plant analysis and found that all of these facilities except Coletto Creek and Stryker Creek had impacts from NO<sub>x</sub>, SO<sub>2</sub> and PM below the BART screening level.<sup>49</sup> CALPUFF modeling showed that Stryker Creek Unit ST2 had a visibility impact of 0.786 dv from NO<sub>x</sub>, SO<sub>2</sub> and PM. However, Stryker Creek Unit ST2 is now covered by a BART alternative for NO<sub>x</sub> and SO<sub>2</sub>, so we evaluated the visibility impact of Stryker Creek Unit ST2's PM emissions alone. The CALPUFF modeling files and spreadsheets included in our proposal indicate that light extinction from PM (PM<sub>Fine</sub> and PM<sub>Coarse</sub>) is less than 1% of total light extinction at all Class I areas. Therefore, because the visibility impact of PM emissions from Stryker Creek Unit ST2 would be a small fraction of 0.786 dv (roughly 1%), the source is not subject to BART for PM under EPA's 2006 guidance.

We also evaluated the potential visibility impact of PM emissions from Coletto Creek Unit 1 using the CAMx modeling that Texas used for PM BART screening of its EGU sources in its SIP.<sup>50</sup> Specifically, we evaluated the modeling results for two facilities (LCRA Fayette and Sommers Deely) with stack parameters similar to Coletto Creek's, but which are located closer to Class I Areas than Coletto Creek. Texas grouped the LCRA Fayette Facility in Group 2 of their PM screening modeling along with other sources and found that their maximum aggregate impacts at all Class I areas were less than 0.25 deciviews (dv). Texas also explicitly modeled the City Public Service Sommers Deely Facility's PM impacts. Maximum impacts at all Class I areas from Sommers Deely were less than 0.32 dv. To extend these model results to Coletto Creek, we used the Q/D ratio where Q is the maximum annual PM emissions<sup>51</sup>

and D is the distance to the nearest receptor of a Class I area. If the Q/D ratio of Coletto Creek is smaller than the ratios for the two modeling results (Fayette and Sommers Deely) then Coletto Creek impacts can be estimated as less than the impacts of these source(s) and thus be screened out. We evaluated the closest Class I Areas (Big Bend, Guadalupe Mountains, Carlsbad, Wichita Mountains, and Caney Creek) and the Q/D ratios were: Coletto Creek (0.59–0.86), Fayette (4.25–6.1), and Sommers Deely (6.0–10.05).<sup>52</sup> The Q/D ratio for Fayette is 6 to 8 times larger than for Coletto Creek, while the Q/D ratio for Sommers Deely is 9 to 11.6 times higher than for Coletto Creek. Therefore, if we were to model the PM impacts from Coletto Creek, they would be an order of magnitude smaller than the impacts from these facilities, which are well below the threshold of 0.5 dv. Therefore, Coletto Creek is not subject to BART for PM emissions.

In finalizing an approval of Texas' determinations regarding PM BART, we offer one additional note. We originally proposed to approve Texas' screening approach in 2014,<sup>53</sup> and our final action today essentially conforms to our technical evaluation in that proposal.

#### 5. NO<sub>x</sub> BART

We are finalizing our proposed determination that Texas EGUs' continued participation in the CSAPR program for interstate transport for ozone will serve as a BART alternative for NO<sub>x</sub> for EGUs in the State of Texas. Our action to address NO<sub>x</sub> BART for EGUs as it applies to Texas is based on two other recent rulemakings concerning CSAPR. The first is the rulemaking to update CSAPR to address interstate transport of ozone pollution with respect to the 2008 ozone NAAQS, which established a new ozone season budget for NO<sub>x</sub> emissions in Texas.<sup>54</sup> The second is the determination that CSAPR continues to be a better than BART alternative, on a pollutant specific basis, for states that participate in the CSAPR program as it now exists.<sup>55</sup> Because our FIP relies on CSAPR as a BART alternative for NO<sub>x</sub> for Texas EGUs, we are not required in this action to promulgate source-specific

daily PM<sub>2.5</sub> emission rate and then calculating the total emissions in tons per year if this max daily rate happened every day.

<sup>52</sup> See 'Coletto\_Creek\_Screen\_analysis.xlsx.'

<sup>53</sup> See 79 FR 74817, 74848 (Dec. 16, 2014).

<sup>54</sup> 81 FR 74504 (Oct. 16, 2016).

<sup>55</sup> See final action signed September 21, 2017 available at [regulations.gov](http://regulations.gov) in Docket No. EPA-HQ-OAR-2016-0598.

<sup>47</sup> See discussion in Memorandum from Joseph Paisie to Kay Prince, "Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations," July 19, 2006.

<sup>48</sup> Stryker Creek is covered by CSAPR for NO<sub>x</sub> and by the SO<sub>2</sub> trading program but was not included in the 2009 Regional Haze SIP. How Stryker Creek is screened out for PM is discussed below.

<sup>49</sup> EPA's Proposal screened out Dansby, Greens Bayou, Handley, Lake Hubbard, Plant X, Powerlane, R W Miller, and Spencer using CALPUFF direct modeling and Model Plants.

<sup>50</sup> Environ Report—"Final Report Screening Analysis of Potential BART-Eligible Sources in Texas", September 27, 2006; "Addendum 1—BART Exemption Screening Analysis", Draft December 6, 2006; and "BARTmodelingparameters V2.csv".

<sup>51</sup> This is calculated by using the maximum daily PM<sub>10</sub> daily emission rate, adding the maximum



NO<sub>x</sub> BART determinations for those sources.

We note that Texas may opt to use its SIP planning authority, as was noted in its 2009 Regional Haze SIP in a similar context, to address the NO<sub>x</sub> BART requirement for EGUs without relying on CSAPR. If Texas instead wishes to rely upon the CSAPR program to address the NO<sub>x</sub> BART requirement, it may submit a SIP revision to establish its reliance on the program to satisfy the requirement for NO<sub>x</sub> BART for EGUs. By using the SIP pathway, Texas would be exercising the primary responsibility for air pollution control that is embodied in the Act. See CAA section 101(a)(3). Recognizing that the 2009 Regional Haze SIP did not, by its terms, provide an approvable means to address the requirement, however, we are now required to exercise our FIP authority to address it.<sup>56</sup> We are therefore finalizing the determination as proposed.

#### *B. Interstate Transport of Pollutants That Affect Visibility*

We are finalizing our proposal to disapprove Texas' SIP revisions addressing interstate visibility transport under CAA section 110(a)(2)(D)(i)(II) for six NAAQS. As explained further in our proposal, Texas' infrastructure SIPs for these six NAAQS relied on the 2009 Regional Haze SIP, including its reliance on CAIR as an alternative to EGU BART for SO<sub>2</sub> and NO<sub>x</sub> to meet the interstate visibility transport requirements.<sup>57</sup> We are finalizing a FIP to fully address Texas' interstate visibility transport obligations for the following six NAAQS: (1) 1997 8-hour ozone, (2) 1997 PM<sub>2.5</sub> (annual and 24 hour), (3) 2006 PM<sub>2.5</sub> (24-hour), (4) 2008 8-hour ozone, (5) 2010 1-hour NO<sub>2</sub> and (6) 2010 1-hour SO<sub>2</sub>.

An EPA guidance document (2013 Guidance) on infrastructure SIP elements states that CAA section 110(a)(2)(D)(i)(II)'s interstate visibility transport requirements can be satisfied by approved SIP provisions that the EPA has found to adequately address a state's contribution to visibility impairment in other states.<sup>58</sup> The EPA

interprets interstate visibility transport to be pollutant-specific, such that the infrastructure SIP submission need only address the potential for interference with protection of visibility caused by the pollutant (including precursors) to which the new or revised NAAQS applies.<sup>59</sup> The 2013 Guidance lays out two ways in which a state's infrastructure SIP submittal may satisfy interstate visibility transport. One way is through a state's confirmation in its infrastructure SIP submittal that it has an EPA approved regional haze SIP in place. In the absence of a fully approved regional haze SIP, a demonstration that emissions within a state's jurisdiction do not interfere with other states' plans to protect visibility meets this requirement. Such a demonstration should point to measures that limit visibility-impairing pollutants and ensure that the resulting reductions conform with any mutually agreed emission reductions under the relevant regional haze regional planning organization (RPO) process.<sup>60</sup>

To develop its 2009 Regional Haze SIP, TCEQ worked through its RPO, the Central Regional Air Planning Association (CENRAP), to develop strategies to address regional haze, which at that time were based on emissions reductions from CAIR. To help states in establishing reasonable progress goals for improving visibility in Class I areas, the CENRAP modeled future visibility conditions based on the mutually agreed emissions reductions from each state. The CENRAP states then relied on this modeling in setting their respective reasonable progress goals.

This FIP is adequate to ensure that emissions from Texas do not interfere with measures to protect visibility in nearby states because the BART FIP emission reductions are consistent with the level of emissions reductions relied upon by other states during consultation. The 2009 Texas Regional Haze SIP relied on CAIR to meet SO<sub>2</sub> and NO<sub>x</sub> BART requirements. Under CAIR, Texas EGU sources were projected to emit approximately 350,000 tpy of SO<sub>2</sub>. As discussed elsewhere, Texas EGU emissions for sources covered by the trading program will be constrained by the number of available allowances. Average annual emissions for the covered sources will be less than or equal to 248,393 tons with some year to year variability constrained by the

number of banked allowances and number of allowances that can be allocated in a control period from the supplemental pool. Sources not covered by the program emitted less than 27,500 tons of SO<sub>2</sub> in 2016 and are not projected to significantly increase from this level. Any new units would be required to be well controlled and similar to the existing units not covered by the program, they would not significantly increase total emissions of SO<sub>2</sub>. Additionally, this FIP relies on CSAPR as an alternative to EGU BART for NO<sub>x</sub>, which exceeds the emissions reductions relied upon by other states during consultation. As such, this BART FIP is sufficient to address the interstate visibility transport requirement under CAA section 110(a)(2)(D)(i)(II) for the six NAAQS.

#### *C. Reasonable Progress*

This final action is part of the long-term strategy for Texas and will contribute to making reasonable progress toward natural visibility conditions at Texas' and downwind Class I areas. However, the EPA is not determining at this time that this final action fully resolves the EPA's outstanding obligations with respect to reasonable progress that resulted from the Fifth Circuit's remand of our reasonable progress FIP. We intend to take future action to address the Fifth Circuit's remand.

#### **IV. Summary and Analysis of Major Issues Raised by Commenters**

We received both written and oral comments at the public hearings we held in Austin. We also received comments by the internet and the mail. The full text of comments received from these commenters, except what was claimed as CBI, is included in the publicly posted docket associated with this action at [www.regulations.gov](http://www.regulations.gov). The CBI cannot be posted to [www.regulations.gov](http://www.regulations.gov), but is part of the record of this action. We reviewed all public comments that we received on the proposed action. Below we provide a summary of certain comments and our responses. First, we provide a summary of all of the relevant technical comments we received and our responses to these comments. We do not consider some of the technical comments as relevant to the final action. For these comments we provide a brief summary of the comments and a discussion as to why they are not relevant. Second, we provide a summary below of the more significant legal comments with a summary of our responses. All of the legal comments we received that are relevant to our final

<sup>56</sup> As explained in our proposal, our ongoing authority and obligation to address the NO<sub>x</sub> BART requirement for Texas EGUs under CAA section 110(c) traces to EPA's limited disapproval of the 2009 Texas Regional Haze SIP in 2012 due to the State's reliance on the remanded and replaced CAIR as an alternative to NO<sub>x</sub> BART. See also *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118, 133–34 (D.C. Cir. 2015) holding that SIPs based on CAIR were unapprovable to fulfill good neighbor obligations.

<sup>57</sup> 82 FR 912, 916 (Jan. 4, 2017).

<sup>58</sup> See "Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and (2)" included in the docket for this action.

<sup>59</sup> See *Id.*, at 33.

<sup>60</sup> See *Id.*, at 34, and 76 FR 22036 (April 20, 2011) containing EPA's approval of the visibility requirement of 110(a)(2)(D)(i)(II) based on a demonstration by Colorado that did not rely on the Colorado Regional Haze SIP.

action are found in a separate document, titled the Legal Response To Comments (RTC) document. Therefore, if additional information is desired concerning how we addressed a particular legal comment, the reader should refer to the Legal RTC document. Third, we provide a summary of the more significant/relevant modeling related comments with a summary of our responses. The entirety of the modeling comments and our responses thereto are contained in a separate document titled the Modeling RTC document.

*A. Comments on Relying on CSAPR for SO<sub>2</sub> BART or Developing an Intrastate SO<sub>2</sub> Trading Program*

*Comment:* We received comments from TCEQ that our proposed SO<sub>2</sub> controls for the coal-fired power plants represents more control than is necessary to satisfy BART. The EPA should consider an alternate control approach for these BART-affected units using source or system caps. Because the CSAPR level of control is better than BART, the EPA should have considered an equivalent control level in its BART analysis. For example, a potential alternative is the concept of system-wide emission caps using CSAPR allocations. A SO<sub>2</sub> system-cap approach for BART would be based on establishing a cap on all the BART subject units under common ownership and control based on CSAPR allocations to those specific units. System-wide caps for these BART subject units based on CSAPR allocations would provide flexibility while actually being more stringent than CSAPR because the companies would not have the ability to trade allocations with non-BART facilities or with companies in other states. Furthermore, the EPA has approved system-cap approaches under the TCEQ's Chapter 117 rules for NO<sub>x</sub>. If such an approach using CSAPR allocations or some other similar variation can be demonstrated to be more stringent than CSAPR itself, then the EPA's CSAPR-is-better-than-BART determination should satisfy some of the demonstration requirements for BART alternatives. Even if not based on CSAPR allocations, the EPA should consider a source-cap or system cap approach as an alternative to unit-by-unit rate-based standards. Source and system cap strategies achieve equivalent reductions by setting mass-based limits (e.g., ton per day) for a group of units derived from rate-based standards and baseline levels of activity for the units. In this context, the rate-based standards used to set the caps would be the emission rates determined to represent

BART. These types of cap approaches allow companies to consider a broader range of alternative strategies. Under a FIP with only unit-by-unit rate-based limits, as proposed by EPA, such an alternative strategy would not be allowed and EPA would have to revise its FIP to allow the company to pursue the alternative. A similar approach using system-caps would provide additional flexibility for companies. If the EPA is averse to creating a system-cap trading program for a single state, an alternative would be to allow for a state system-cap trading program that would allow companies to trade between systems once the EPA has approved the state program.

We received a comment from American Electric Power (AEP) stating that in the proposed Texas BART FIP, EPA states that it encourages Texas to consider adopting SIP provisions that would allow EPA to fully approve the Regional Haze SIP with respect to Regional Haze and Interstate Visibility Transport. AEP also suggests that alternatively, Texas may also elect to satisfy its obligations by demonstrating an alternative. Although AEP views the most expeditious resolution for satisfying BART is finalization of CSAPR as a better-than-BART alternative, AEP would also welcome and support working with the State and EPA to develop a satisfactory BART compliance alternative. For example, AEP is open to consideration of a cap and trade program or other option for BART compliance. AEP is prepared to engage in such discussions as soon as possible.

We also received a comment from Luminant stating that the EPA can and should address BART for Texas, not through EPA-mandated controls on individual units but through one of several available BART alternatives that will ensure equivalent or greater benefits at far less costs, as demonstrated by EPA's own prior analyses of Texas EGUs' emissions. Among those available alternatives is EPA's original proposed BART plan for EGUs in Texas—reliance on Texas EGUs' participation in the CSAPR annual SO<sub>2</sub> and NO<sub>x</sub> trading programs as BART compliance. Since CSAPR became effective in 2015, SO<sub>2</sub> emissions from Texas EGUs have declined substantially and are well below the levels that EPA previously determined are "better-than-BART." EPA itself calculated "major visibility improvements at Class I areas in and around Texas" from the CSAPR-for-BART alternative for Texas. The CSAPR-for-BART alternative remains the most expeditious and cost effective

path for finalizing a BART solution for Texas EGUs. Indeed, EPA's only lawful path forward to finalize a BART FIP for Texas by the current September 9, 2017 deadline in EPA's consent decree with Sierra Club is to finalize a CSAPR-for-BART FIP for Texas EGUs, as EPA proposed to do in December 2014. That proposal was not withdrawn, remains a valid and defensible alternative, is supported by the record and prior EPA technical analyses, and has been fully vetted with substantial public review and comments.

*Response:* Due to these comments requesting a BART alternative in lieu of source-specific EGU BART, we are finalizing an intrastate SO<sub>2</sub> trading program as an alternative to source-by-source BART and to meet the interstate visibility transport requirements. This program will provide the commenters, and other owners of covered EGUs, with many of the benefits that they attributed to CSAPR. The premise in the comment that Texas EGUs are subject to CSAPR's SO<sub>2</sub> trading program is no longer true, given our recent action to remove Texas from that trading program.<sup>61</sup> Hence, we cannot take the commenter's recommended action of addressing SO<sub>2</sub> BART through reliance on CSAPR.

*B. Comments on Source-Specific BART*

*Comment:* We received a number of comments in favor or against our proposals regarding BART-eligibility status, subject-to-BART status, and source-specific BART technologies and emission limits. Some were general and some were very specific.

*Response:* Due to the comments we received requesting a BART alternative in lieu of source-specific BART determinations, we are finalizing an intrastate SO<sub>2</sub> trading program as an alternative to source-by-source BART and to meet the interstate visibility transport requirements. As a consequence, we believe that it is not necessary to respond to comments concerning the merits of the proposed source-specific BART technologies and emission limits. Comments related to BART-eligibility status and subject-to-BART status are addressed elsewhere in this preamble.

*C. Comments on EPA's Proposed SIP Disapprovals*

*Comment:* The root of EPA's flawed proposal is EPA's departure from the cooperative federalism principles underlying the Clean Air Act. The State of Texas developed its regional haze SIP

<sup>61</sup> See final action signed September 21, 2017 available at [regulations.gov](http://regulations.gov) in Docket No. EPA-HQ-OAR-2016-0598.



after years of work, technical analysis, and coordination with other States. For BART, Texas relied on the participation of Texas EGUs in CAIR and EPA's determination that CAIR was better-than-BART. EPA should have approved Texas's SIP at the time because it complied with all statutory requirements and was supported by EPA's own modeling. In no way does the Proposed Texas BART FIP—which starts over from scratch and creates an entirely new approach to BART for Texas EGUs—respect the State's primary role under the statute. At a minimum, to more closely align with the State of Texas's original choice to meet BART through a regional trading program, EPA should now finalize its prior proposal that CSAPR serve as a complete BART alternative for Texas EGUs.

*Response:* Our action in 2012 to disapprove Texas' 2009 SIP submission due to its reliance on CAIR is not the subject of this rulemaking and we do not address here the comment opposing that final action. We agree that CSAPR continues to be available on a pollutant-specific basis as a BART alternative for participating states for those pollutants subject to trading by CSAPR program participation; hence, we are finalizing a determination that CSAPR is better than BART for NO<sub>x</sub> at Texas EGUs. However, the premise in the comment that Texas EGUs are subject to CSAPR's SO<sub>2</sub> trading program is no longer true, given our recent action to remove them from that trading program.<sup>62</sup> Hence, we cannot take the specific action recommended in this comment. Due to these comments requesting a BART alternative in lieu of source-specific EGU BART determinations, we are, however, finalizing a SO<sub>2</sub> trading program as an alternative to source-by-source BART and as meeting the interstate visibility requirements.

#### D. Legal Comments

We received comments addressing EPA's authority to promulgate a Federal Implementation Plan (FIP), the use of CSAPR as a better-than-BART alternative, cooperative federalism, deference to the State, the new Administration's policies, Executive Orders, and litigation. These comments, and the response to comments, can be found in the document titled Legal RTC in the docket for this action. Below is a summary of some of the more significant comments we received. For a detailed review of all legal comments

and responses, we refer the reader to this separate document.

#### 1. EPA's Obligation and Authority To Promulgate a FIP

*Comment:* Texas' and industry's challenge to CSAPR does not relieve EPA of its mandatory duty to issue a source-specific BART FIP for Texas. Although EPA would have permitted Texas to rely on CSAPR's modest cap-and-trade program to avoid source-specific BART controls, Texas, Luminant, AEP, and Southwestern Public Service Company all chose to challenge CSAPR. They were ultimately successful in defeating EPA's inclusion of Texas in the program for SO<sub>2</sub> and ozone-season NO<sub>x</sub>. Ever since the D.C. Circuit remanded the Texas NO<sub>x</sub> and SO<sub>2</sub> budgets to EPA in July 2015, Texas has been on notice that source-specific BART could well be necessary to meet its BART obligations. Yet Texas has not put forward either a new interstate transport SIP to replace CSAPR or a new BART SIP to address the Regional Haze Rule.

*Response:* We agree that we have a mandatory duty to address the BART requirements for Texas EGUs but we do not agree that we must address these requirements through a FIP establishing source specific BART limits. We understand the comment to be referencing the court action, *EME Homer City Generation v. EPA*, 795 F.3d 118 (D.C. Cir., July 28, 2015). At all times since the original submission of the 2009 Regional Haze SIP, Texas has been entitled to submit updated or new SIP revisions to address BART or interstate transport. A State is also entitled to submit a SIP that may be approved to replace a FIP after a FIP's promulgation. When and whether Texas has been "on notice" regarding a potential need for source-specific BART is not material to the present need to address the EGU BART requirements through either a SIP or FIP. We do note that the 2009 Regional Haze SIP stated, "The TCEQ will take appropriate action if CAIR is not replaced with a system that the US EPA considers to be equivalent to BART." See 2009 SIP at 9–1. The 2009 SIP further acknowledged, "Some EGUs may become subject to BART pending resolution of the CAIR at the federal level." See 2009 SIP at 9–17. As circumstances now apply to Texas (and, as this comment suggests, may have been earlier projected), the State can take appropriate action to develop a SIP to address the EGU BART and interstate visibility transport requirements. The TCEQ and EPA recently signed a MOA to work together to develop a SIP revision addressing

interstate visibility transport requirements and BART requirements for EGUs with a BART alternative trading program starting from CSAPR.<sup>63</sup> However, without such a SIP, the Clean Air Act requires a promulgation of a FIP to address the outstanding BART and interstate transport requirements.

*Comment:* Texas's decision to not meet the BART requirements for its EGUs through voluntary participation in CSAPR does not relieve EPA of its mandatory duty to issue a source-specific BART FIP for Texas. Even if Texas were willing to voluntarily incorporate EPA's invalidated CSAPR emission budgets into its SIP, the state cannot simply opt in and avoid source-specific BART. Because Texas cannot reverse course and adopt emissions budgets that it demonstrated were unnecessary, as a matter of law, and because the agency cannot achieve "all" of the CSAPR reductions by 2018 (the end of the first planning period), it cannot voluntarily adopt CSAPR.

*Response:* We agree that we have a mandatory duty to address the BART requirement for Texas EGUs, but we do not agree that we must address it through a source-specific BART FIP. We understand this comment to refer to a hypothetical scenario based on the development and submission of a SIP by Texas providing for voluntary participation in CSAPR as a means of addressing the SO<sub>2</sub> and/or NO<sub>x</sub> BART requirements for Texas EGUs. The possibility of such an option was detailed in a June 27, 2016 memorandum entitled, "The U.S. Environmental Protection Agency's Plan for Responding to the Remand of the Cross-State Air Pollution Rule Phase 2 SO<sub>2</sub> Budgets for Alabama, Georgia, South Carolina and Texas." That memorandum was provided and available to Texas and other states. Several other states have pursued this option, but Texas has not, and it is not within the scope of our proposal. We are not opining on the operation of state law or otherwise responding to this comment. We address the issue of whether emission reductions from a BART alternative must be achieved by 2018 in our response to another comment.

*Comment:* EPA withdrawal of Texas from CSAPR does not relieve EPA of its mandatory duty to issue a source-specific BART FIP for Texas. After

<sup>62</sup> See final action signed September 21, 2017 available at [regulations.gov](http://regulations.gov) in Docket No. EPA-HQ-OAR-2016-0598.

<sup>63</sup> See Memorandum of Agreement Between the Texas Commission on Environmental Quality and the Environmental Protection Agency Regarding a State Implementation Plan to Address Certain Regional Haze and Interstate Visibility Transport Requirements Pursuant to Sections 110 and 169A of the Clean Air Act, Signed August 14, 2017.



having given Texas four months' notice of its intent to fully withdraw the state from the CSAPR program, and made clear the implication that there would no longer be any doubt that Texas sources would need to comply with source-specific BART obligations, EPA formally issued its proposal to withdraw its federal plan to include Texas in the CSAPR emissions trading program one month before issuing the BART proposal. 81 FR 78954 (Nov. 10, 2016). EPA again made clear the situation: "[I]f and when this [CSAPR withdrawal] proposal is finalized, Texas will no longer be eligible to rely on CSAPR participation as an alternative to certain regional haze obligations including the determination and application of source-specific SO<sub>2</sub> BART. Any such remaining obligations are not addressed in this proposed action and would be addressed through other state implementation plan (SIP) or FIP actions as appropriate." *Id.* at 78,956. EPA has informed the U.S. District Court for the District of Columbia that it intends to finalize this proposal by October 31, 2017.

After challenging the state's inclusion in CSAPR for years, industry has done an about face in response to EPA's Texas BART Proposal and now opposes EPA's withdrawal of Texas from CSAPR. But EPA has gone on record that the agency does not currently have an analytical basis to support new CSAPR budgets for Texas. As EPA has noted, there was no such thing as a legally compliant CSAPR budget for Texas following the remand. Texas has had many years to submit a state SIP equivalent to CSAPR or other BART alternative to avoid source-specific BART, but Texas has taken no action to address its contribution to interstate pollution or regional haze.

*Response:* We agree that we have a mandatory duty to address the BART requirement for Texas EGUs, but we do not agree that we must address it through a source-specific BART FIP. We also have a mandatory duty to address the interstate visibility transport requirements.

*Comment:* We have strongly opposed the CSAPR-Better-than-BART rule since its inception. It is unlawful and unsupported by the scientific record. Legal challenges to EPA's rule which purports to authorize reliance on CSAPR to satisfy BART are currently pending in the D.C. Circuit Court of Appeals. Until the D.C. Circuit rules on the validity of the CSAPR-Better-than-BART rule, neither EPA nor Texas should assume that CSAPR is an appropriate substitute for BART.

*Response:* The legal and technical determinations of the CSAPR-Better-than-BART rule are subject to judicial review under existing challenges and a separate administrative record, as indicated by the comment. Any challenges raised with regard to the present rulemaking and outside that litigation may be time-barred or directed to the wrong forum. As such, we do not believe that the incorporation of arguments from a brief filed with the D.C. Circuit concerning a separate regulatory determination warrants responses here, in this rulemaking, and that to offer responses here would suggest some basis for collateral, time-barred arguments that are out of the scope of this action.

*Comment:* In addition to the legal uncertainty surrounding the national CSAPR-Better-than-BART rule, it is too late for Texas to rely on a BART alternative like CSAPR or any other program. Under EPA's Regional Haze Rule, any BART *alternative* must include a "requirement that all necessary emission reductions take place during the period of the first long-term strategy for regional haze"—*i.e.*, no later than 2018. There are no plans in place, or even in development, for any federal or state program that would ensure the necessary reductions take place by the end of the first planning period in 2018.

With the exception of a BART alternative approved for the Navajo Generating Station, which relied on the Tribal Authority Rule to provide additional flexibility, EPA has never proposed or approved a BART alternative that would allow the necessary emission reductions to be delayed past 2018. In *Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016), Texas and industry persuaded the Fifth Circuit of a likelihood that EPA could not require controls beyond the first planning period for reasonable progress. While neither the statute nor regulation precludes emission reductions relative to *reasonable progress requirements* to occur beyond the planning period deadline, the *BART alternative requirements* contain a provision directly on point. Accordingly, emission reductions under a BART alternative must be implemented by the end of the first planning period.

*Response:* The Regional Haze Rule at 40 CFR 51.308(e)(2)(iii) requires that the emission reductions from BART alternatives occur "during the period of the first long-term strategy for regional haze." The SO<sub>2</sub> BART alternative that EPA is finalizing here will be implemented beginning in January 2019, and thus emission reductions

needed to meet the allowance allocations must take place by the end of 2019. For the purpose of evaluating Texas's BART alternative, the end of the first planning period of the first long-term strategy for Texas is 2021. This is a result of recent changes to the regional haze regulation, revising the requirement for states to submit revisions to their long-term strategy from 2018 to 2021.<sup>64</sup> Therefore, the emission reductions from the Texas SO<sub>2</sub> trading program will be realized prior to that date and within the period of Texas' first long-term strategy for regional haze. Moreover, we expect that source owners in 2018 will already be taking steps, including appropriate source-level compliance planning (*e.g.*, purchase contracts for coal), to be ready for the compliance year beginning on January 1, 2019. Adding to this, the State has already experienced reductions in SO<sub>2</sub> emissions in response to market conditions and, to some extent, periods of compliance with CSAPR, including its allocations for SO<sub>2</sub>, when those measures were in effect or otherwise part of source owner planning considerations.

We note that the BART alternative is projected to be implemented before any of the earlier-proposed compliance dates for source-specific SO<sub>2</sub> BART for coal-fired units.

The last year for which Texas EGUs must meet CSAPR requirements for SO<sub>2</sub> is 2016. We considered and decided not to make the Texas SO<sub>2</sub> trading program effective for 2017 because that would be unreasonably short notice to the affected EGUs in light of the late date in 2017 on which this action will become effective. We considered and decided not to make the program effective for 2018 because that also would be unreasonably short notice given that affected EGU owners should be allowed more than a few months to determine their strategy for compliance with the program in light of it having some features that are different from the CSAPR trading program they have been operating under until recently, for example the fact that they will no longer be able to purchase and use allowances from out-of-state EGUs.

*Comment:* Adopting an emissions trading program for Texas that allows anywhere close to the tonnage of SO<sub>2</sub> permitted by the emissions caps in CSAPR would also fail to meet the substantive requirements for a BART alternative. While the D.C. Circuit is considering whether CSAPR meets these substantive requirements in the CSAPR-Better-than-BART litigation, Texas's situation is unique in that EPA has

<sup>64</sup> 82 FR 3078 (Jan. 10, 2017).

actually completed a source-specific BART proposal that can be directly compared with the CSAPR program. Thus, even if the CSAPR-Better-than-BART rule is upheld as a national rule that EPA has the option of relying upon in certain states, and even if Texas were to join CSAPR or voluntarily adopt its budgets, it would be arbitrary for EPA to rely on CSAPR as a BART alternative without actually comparing the CSAPR or CSAPR-like program with its BART proposal. When comparing the two head-to-head, it is obvious as a practical matter that allowing Texas's coal-fired power fleet to essentially continue emitting the same levels of SO<sub>2</sub> as the status quo is not going to achieve equivalent visibility gains as the BART proposal would. As detailed in "EPA's Fact Sheet for the Open House on EPA's Clean Air Plan Proposal for Texas Regional Haze", the proposed BART limits are expected to reduce emissions of SO<sub>2</sub> from 16 EGUs and would cut emissions from approximately 89 to 98 percent—a reduction of over 194,000 tons of SO<sub>2</sub> every year.

To satisfy the requirements for a BART "alternative," an emissions trading program must make a technical demonstration that the trading program "will achieve greater reasonable progress [towards natural visibility] than would have resulted from the installation and operation of BART at all sources subject to BART." *Id.* § 51.308(e)(2)(i). Under EPA's regulations, if the distribution of emissions is different under an alternative program, a state "must conduct dispersion modeling" to determine differences in visibility between BART and the trading program for each impacted Class I area, for the worst and best 20 percent of days. The modeling only demonstrates "greater reasonable progress" if both of the following two criteria are met: (i) Visibility does not decline in any Class I area, and (ii) There is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas. *Id.* § 51.308(e)(3).

*Response:* The comment addresses the approvability of a hypothetical SIP offered to meet the requirements of 40 CFR 51.308(e)(2). First, we do not agree with the premise of the comment that merely proposed determinations of BART in the context of a possible FIP set a stringency threshold for a demonstration set forth in a hypothetical SIP. Proposed determinations are only proposals and the facts put forth to support those proposals are themselves subject to

correction via public comment and new information. Second, we also do not agree with any extension of the commenter's assertion to a FIP. While the comment does not address all the pertinent requirements for a BART alternative, we have done so elsewhere in this preamble. For example, as allowed by the requirements for a BART alternative in § 51.308(e)(2)(i)(C), we are declining to conduct the analysis that would include making determinations of BART for each source subject to BART and we are instead exercising the exception allowed when the alternative measure "has been designed to meet a requirement other than BART (such as the core requirement to have a long-term strategy to achieve the reasonable progress goals established by States)." <sup>65</sup> Third, we disagree that 51.308(e)(3) applies to this action. Rather, we find justification for the BART alternative under the "clear weight of the evidence" that the trading program will provide greater reasonable progress than would be achieved through the installation and operation of BART at the covered sources. This means of validating a BART alternative, described by one Court as the "catch-all," is permitted by 40 CFR 51.308(e)(2)(i)(E). We are allowed but not required to validate the BART alternative under the test set out in 40 CFR 51.308(e)(3). Although we are not applying that test here, we believe this intrastate trading program meets the intent of (e)(3). When promulgating the 2012 CSAPR-Better-than-BART rule, the EPA relied on an analysis showing that CSAPR would result in greater reasonable progress than BART under the test in 40 CFR 51.308(e)(3). In this action we are relying, in part, on that demonstration to show that the clear weight of evidence demonstrates that the SO<sub>2</sub> Trading Program will provide for greater reasonable progress than BART in Texas. This is based on a showing that the emissions in Texas under the BART alternative will be on average no greater than the emission levels from Texas EGUs that was forecast in the demonstration for Texas EGU emissions assuming CSAPR participation.

## 2. Statutory or Regulatory Text

*Comment:* A state should be able to independently rely on EPA's CSAPR-is-better-than-BART determination if the state can demonstrate that a state-only program for EGUs is more stringent than CSAPR. While the TCEQ has not proposed any action to implement a Texas-only program for EGUs based in some way on CSAPR as a means of

satisfying BART, and these comments in no way represent a commitment to propose such an action, the TCEQ should be able to rely on the EPA's CSAPR-is-better-than-BART determination to satisfy certain aspects of the BART alternative provisions in 40 CFR part 51, § 51.308(e)(2) if such a program can be demonstrated to be more stringent than CSAPR. Specifically, the state should be able to rely on the EPA's determination that CSAPR resulted in greater reasonable progress than source-specific BART to satisfy the requirements of § 51.308(e)(2)(i)(E) and (e)(3).

We acknowledge that other requirements of § 51.308(e)(2) would still need to be satisfied, such as monitoring, recordkeeping, reporting, and provisions for emission trading programs. While the CSAPR option is specifically listed at § 51.308(e)(4), the EPA's Regional Haze rules do not prohibit a state from relying on EPA's modeling demonstration that CSAPR resulted in greater reasonable progress when using an alternative under § 51.308(e)(2). If a state-only program is more stringent than CSAPR, for example a program based on CSAPR allocations but without interstate trading, requiring a state to conduct extensive modeling to demonstrate what the EPA has already demonstrated for a less stringent program is illogical and places an unnecessary and wasteful burden on states.

*Response:* We agree with this comment. In response to this comment, our final FIP establishes an intrastate trading program that operates much like the CSAPR program did in Texas. This program is discussed in more detail elsewhere.

## 3. EPA's Reliance on CSAPR for NO<sub>x</sub> BART

*Comment:* Agree with EPA's proposal regarding CSAPR as a BART alternative for NO<sub>x</sub> which is proposed for separate finalization. EPA could have followed the D.C. Circuit's directive and updated NO<sub>x</sub> (and SO<sub>2</sub>) budgets for Texas. EPA could have but declined to do so. EPA notes that finalization of CSAPR as better-than-BART for NO<sub>x</sub> is contingent on a separate finalization that the D.C. Circuit remands would not adversely impact 2012 demonstrations. Uncertainty in this proposal does not seem to be an issue for NO<sub>x</sub> and EPA is again basing a proposal on an action yet to be finalized.

*Response:* Whether we were in a position to provide updated annual NO<sub>x</sub> and SO<sub>2</sub> budgets for Texas is not relevant to this rulemaking. Because Texas EGUs are required to continue

<sup>65</sup> See 40 CFR 51.308(e)(2)(i)(C).

participation in CSAPR for ozone transport, which involves NO<sub>x</sub> trading, we are determining that the NO<sub>x</sub> BART requirement for EGUs continues to be met through our determination that CSAPR is better than BART.

We interpret the comment as supporting this action, even as it appears to criticize our reference to another proposed action, which has since been finalized, as part of the proposal for the NO<sub>x</sub> aspect of this action. Our proposed and finalized action for the NO<sub>x</sub> BART requirement addresses the Act's requirements for Texas. This action and our recent action to remove Texas EGUs from CSAPR's SO<sub>2</sub> trading program are distinct actions, but we have provided appropriate transparency and notice regarding how the proposed actions relate and have given careful consideration to comments received that have bearing on each of the actions.

*Comment:* EPA's proposal is unlawful because it exempts sources from installing BART controls without going through the exemption process Congress prescribed. The visibility protection provisions of the Clean Air Act include a "requirement" that certain sources "install, and operate" BART controls. 42 U.S.C. 7491(b)(2)(A). Congress specified the standard by which sources could be exempted from the BART requirements, which is that the source is not reasonably anticipated to cause or contribute to a significant impairment of visibility in any Class I area. Appropriate federal land managers must concur with any proposed exemption. EPA has not demonstrated that any of the Texas EGUs subject to BART meet the standards for an exemption, nor has EPA obtained the concurrence of federal land managers. Therefore, EPA must require source-specific BART for each power plant subject to BART.

*Response:* To the extent the comment is directed to the prior rules that determined and redetermined that CSAPR is better than BART and may be relied upon as an alternative to BART, we disagree that relying on CSAPR is in conflict with the CAA provision regarding exemptions from BART. In addition, the commenter's objection does not properly pertain to this action, but instead to our past action that established 40 CFR 51.308(e)(4). We believe this comment to fall outside of the scope of our action here. To the extent the comment objects to BART alternatives generally, we also disagree. In addition, that objection does not properly pertain to this action, but instead to our past regulatory action that provided for BART alternatives.

*Comment:* Even if EPA could use a BART alternative without going through the statutory exemption process, the CSAPR-Better-than-BART Rule was fatally flawed, and even if it were valid in 2012, is now woefully outdated. EPA's regulations purport to allow the use of an alternative program in lieu of source-specific BART only if the alternative makes "greater reasonable progress" than would BART. 40 CFR 51.308(e)(2). To demonstrate greater reasonable progress, a state or EPA must show that the alternative program does not cause visibility to decline in any Class I area and results in an overall improvement in visibility relative to BART at all affected Class I areas. *Id.* § 51.308(e)(3)(i)–(ii).

EPA compared CSAPR to BART in the Better-than-BART Rule by using CSAPR allocations that are more stringent than now required as well as by using presumptive BART limits that are less stringent than are actually required under the statute. Even under EPA's skewed 2012 comparison, CSAPR achieves barely more visibility improvement than BART at Big Bend and Guadalupe Mountains. The NO<sub>x</sub> emissions allowed under CSAPR from Texas EGUs are higher than would be allowed under BART. This was true even before EPA revised CSAPR to increase the emissions allocations for all Texas EGUs.

If it were assumed that the CSAPR-Better-than-BART Rule were valid in 2012, it is based on assumptions for both CSAPR and BART emissions which are now woefully outdated. The CSAPR-Better-than-BART Rule's reliance on presumptive BART emission limits is now outdated, given that EPA has issued or approved source-specific BART determinations for dozens of sources since 2012. In particular, for Texas sources, EPA has proposed SO<sub>2</sub> BART limits which are far below the presumptive BART limits EPA used in the Better-than-BART Rule. For units other than Martin Lake, EPA proposes SO<sub>2</sub> BART limits of 0.04 to 0.06 lbs/MMBtu, which are well below the presumptive SO<sub>2</sub> BART limit of 0.15 lbs/MMBtu; even at Martin Lake, EPA proposes limits of 0.11 to 0.12, which are still below presumptive BART for SO<sub>2</sub>.

Similarly, the CSAPR-Better-than-BART Rule is based on a version of CSAPR that no longer exists. Accordingly, any conclusion that EPA made in the 2012 Better than BART rule regarding whether CSAPR achieves greater reasonable progress than BART is no longer valid. Since 2012, EPA has significantly changed the allocations and the compliance deadlines for

CSAPR. Of particular relevance here, after 2012, EPA dramatically increased the CSAPR allocations for every covered EGU in Texas. EPA later withdrew the February 21, 2012 rule revision, but issued a new rule that included both the changes in the February 21, 2012 rule as well as additional changes to state budgets.

By the time EPA finalized the Better-than-BART Rule in June 2012, EPA had changed the state emissions budgets by tens of thousands of tons, yet EPA proceeded to finalize the Better-than-BART Rule based solely on the emissions budgets in the original, 2011 CSAPR rule. EPA also extended the compliance deadlines by three years, such that the phase 1 emissions budgets take effect in 2015–2016 and the phase 2 emissions budgets take effect in 2017 and beyond. Even more changes to CSAPR have occurred as a result of the D.C. Circuit's decision in *EME Homer City II Generation*, including the proposed withdrawal of Texas from the annual NO<sub>x</sub> and SO<sub>2</sub> trading programs. Given the large number of final BART determinations made since 2012, and the significant changes to CSAPR budgets since 2012, it is arbitrary and capricious to rely on the outdated assumptions about emissions which were made in the CSAPR-Better-than-BART Rule.

*Response:* As we had proposed, our finalized determination that CSAPR participation will resolve NO<sub>x</sub> BART requirements for Texas EGUs is based on a separately proposed and finalized action. This comment falls outside of the scope of our action here.

*Comment:* EPA's November 2016 "Sensitivity Analysis" purports to update its CSAPR-Better-than-BART analysis to show that CSAPR still makes greater reasonable progress than BART. We agree with EPA that the 2016 Sensitivity Analysis is not a proper legal basis for demonstrating that CSAPR makes greater reasonable progress than BART, because the 2016 analysis is merely a proposed rule. It would be unlawful to issue a final BART rule relying on CSAPR to satisfy the NO<sub>x</sub> BART requirements in the absence of a final rule demonstrating that the CSAPR Update makes greater reasonable progress than BART.

To demonstrate that CSAPR makes greater reasonable progress than BART, EPA must show that (1) visibility does not decline in any Class I area under CSAPR, and (2) there is an overall improvement in visibility, based on comparing the average differences between CSAPR and BART across all affected Class I areas. EPA's analysis falls well short of making such a



demonstration, as we noted in our prior comments on EPA's 2016 Sensitivity Analysis.

EPA's 2016 analysis is markedly different from the CSAPR-Better-than-BART Rule, which relied on quantitative modeling of electric power sector emissions, using the Integrated Planning Model, and quantitative modeling of visibility at all affected Class I areas, using CAMx. Instead of updating that modeling, EPA's 2016 analysis consists of a back-of-the-envelope, qualitative discussion. This is wholly insufficient. There have been enormous changes in the electric power sector since EPA issued the Better-than-BART Rule in 2012, including changes in regulatory requirements (e.g., CSAPR revisions, NAAQS updates, etc.) and changes in unit operations caused by changes in fuel prices, demand, etc. Given that EPA believed in 2012 that it was necessary to conduct quantitative modeling of power sector emissions and the visibility impacts of such emissions, EPA must update that modeling in order to prove that CSAPR still makes greater reasonable progress than BART.

EPA's failure to update the modeling upon which it relied in the 2012 Better than BART Rule is even more arbitrary given EPA's assumption, in the 2016 Sensitivity Analysis, that no trading of CSAPR allowances would occur across state lines. The Sensitivity Analysis uses "emissions that would occur if the state budgets are increased as proposed assuming that all of the additional allowances are used by sources in the respective state (i.e., we did not re-model trading)." This assumption bears no relationship to reality, in which CSAPR—both the original rule, and the updated rule—expressly allows trading across state lines. EPA's failure to create a realistic depiction of the geographic distribution of emissions under the updated CSAPR budgets dooms its Sensitivity Analysis, as EPA must demonstrate that visibility does not decline in any Class I area. Trading across state lines can increase emissions from particular sources, which in turn can degrade visibility at particular Class I areas. Having failed to consider how inter-state trading will affect the distribution of emissions under CSAPR, EPA cannot possibly show that visibility will not decline in any Class I area under CSAPR.

Similarly, EPA failed to account for intra-state trading under CSAPR. Even assuming all changes in budgets would apply only within the affected state—that is, assuming interstate emissions trading did not change at all—EPA has not accounted for trading within the states. A 20% reduction in statewide

emissions does not imply that each unit will reduce its emissions by 20%; indeed, some units could increase emissions while statewide emissions went down. EPA does not seem to have accounted for this in its analysis. Thus, even within EPA's scenario whereby no changes to reflect current conditions need to be made, EPA's *ad hoc* analysis fails to demonstrate that the "Better-than-BART" test above would be met because EPA has failed to account for changes in emissions distribution based on the altered budgets.

In addition, EPA cannot simply assume that the visibility improvement averaged across all Class I areas, 40 CFR 51.308(e)(3)(ii), will still be better under the updated CSAPR than under BART. Without updated visibility modeling, EPA has no data to demonstrate that the second prong of the BART alternative test will be met in spite of the substantial changes in coverage and budgets under CSAPR.

*Response:* In part, the comment makes the point that this final action cannot rely on another action that has only been proposed. We agree with this aspect of the comment, but this part of the comment is no longer relevant because the other action has now been finalized. As we had proposed, our finalized determination that CSAPR participation will resolve NO<sub>x</sub> BART requirements for Texas EGUs is based on a separately proposed and now finalized action. This comment in its discussion of the 2016 sensitivity analysis and other particulars raises issues that are addressed in the record for that separately finalized action. This comment falls outside of the scope of our action here.

*Comment:* Under the updated version of CSAPR, Texas will not have allowances for annual NO<sub>x</sub> emissions. Instead, Texas will have a CSAPR budget for NO<sub>x</sub> for only the ozone season, which runs a few months each year. But BART is not a seasonal requirement; BART requires continuous operation of pollution controls. "The determination of BART must be based on an analysis of the best system of continuous emission control technology available and associated emission reductions achievable for each BART-eligible source that is subject to BART within the State." It violates EPA's regulations to use seasonal emissions reductions under CSAPR to satisfy the BART requirement to install and operate "continuous emission control technology."

*Response:* We disagree with this comment, but also note that it should not be directed to this action but rather to the past rulemaking determination

that provided BART coverage for pollutant trading under CSAPR as specified at 40 CFR 51.308(e)(4). In any event, the argument that BART must be based on "continuous" control does not transfer to the application and operation of a BART alternative. Sources that would operate under an annual trading program that provides tons per year allocations for a unit are not necessarily applying "continuous" controls either. In fact, they are also free to operate seasonally or with intermittent use of controls so long as they operate within the allocation or purchase allowances whenever emissions may exceed that allocation. We necessarily disagree that EPA regulations would bar seasonal emissions reductions to satisfy requirements for a BART alternative.

#### 4. Other CSAPR Comments

*Comment:* The EPA should proceed to finalize CSAPR as a better-than-BART alternative not only as to NO<sub>x</sub> but also as to SO<sub>2</sub>. In the Texas Regional Haze SIP, Texas relied on EPA's Regional Haze Rule that allows states to implement an alternative to BART as long as the alternative has been demonstrated to achieve greater reasonable progress toward the national visibility goal than BART. EPA made such a demonstration for CAIR and many states, including Texas, relied on CAIR's cap and trade programs as a BART alternative for EGU emissions of SO<sub>2</sub> and NO<sub>x</sub> in their SIP submittals. Following EPA's demonstration in 2005 that CAIR is better-than-BART and after Texas submitted the Regional Haze SIP, the D.C. Circuit Court remanded CAIR to EPA but ultimately did not vacate the CAIR rule. EPA approved certain States' SIPs that implemented CAIR as a BART alternative, yet, EPA did not do so for Texas.

CSAPR was issued to replace CAIR and because of EPA's action on CAIR, EPA subsequently withdrew reliance on CAIR as a BART alternative and finalized the demonstration that compliance with CSAPR is better than application of BART. This action occurred after Texas had submitted its SIP.

On December 16, 2014, EPA published a proposed FIP program to "replace reliance on CAIR with reliance on the trading programs of CSAPR as an alternative to BART for SO<sub>2</sub> and NO<sub>x</sub> emissions for EGUs." The CSAPR rule had been challenged in the D.C. Circuit and the court held that EPA had over-controlled certain States' budgets and remanded the CSAPR rule without vacatur for further revision by EPA. In January 2016, EPA did not finalize BART controls for EGUs, citing

uncertainty. EPA issued the CSAPR Update on October 24, 2016 but did not revise SO<sub>2</sub> or NO<sub>x</sub> annual budgets for Texas.

EPA's Proposed FIP and the imposition of source-specific BART relies on the EPA's proposed rulemaking for the withdrawal of Texas from the CSAPR Phase 2 trading budgets for SO<sub>2</sub>. In November 2016, EPA published a proposal to withdraw the FIP provisions that required affected EGUs to participate in Phase 2 of the CSAPR trading programs for annual emissions of SO<sub>2</sub> and NO<sub>x</sub> purportedly to address a decision of the U.S. Court of Appeals for the District of Columbia Circuit that had remanded for further consideration the CSAPR Phase 2 SO<sub>2</sub> budgets for Texas and other states.

EPA's proposed withdrawal of Texas from the Phase 2 CSAPR program for SO<sub>2</sub> included a "sensitivity analysis" indicating that removal of Texas from the Phase 2 SO<sub>2</sub> budget trading program (and including the removal of the Florida trading program) would not adversely impact the demonstration that CSAPR participation continued to qualify as an alternative to compliance with BART, in other states that were relying on CSAPR for BART compliance.

EPA also noted that "[n]o changes to the Regional Haze Rule are proposed as part of the rulemaking." *Id.* However, in support of this FIP proposal addressing Regional Haze, EPA notes that it, "had earlier proposed to rely on CSAPR participation to address these BART-related deficiencies in Texas' SIP submittals referencing its December, 2014 proposed FIP." EPA did not address the D.C. Circuit Court's remand as directed.

The D.C. Circuit had remanded without vacatur the Phase 2 budgets in *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118 (D.C. Circuit 2015) and directed the EPA to reconsider the emission budgets and propose revised budgets. AEP said they did not support EPA's proposal to withdraw Texas from CSAPR, stating that the EPA had provided insufficient justification and explanation for the proposal and had not considered the impact on the trading market. AEP noted that the court had specifically not vacated the Phase 2 budgets due to concerns that such a decision would disrupt the trading markets. AEP also expressed concern that withdrawing Texas from CSAPR would impact the compliance strategies facilities have developed for compliance with BART, as BART eligible facilities had developed compliance strategies assuming BART compliance would be achieved through compliance with

CSAPR. AEP said they supported the CSAPR trading programs because of their flexibility and administrative convenience, cost-effectiveness and the "remarkable reductions that have occurred across the electric utility industry." AEP also considered EPA's analysis of the impact of sources in Texas on nonattainment areas in other states was inadequate and the explanation provided by EPA for its decision to change the initial determination was insufficient and potentially exposed Texas EGUs to future liability for the impact of PM<sub>2.5</sub> emissions on Madison County and other upwind locations. AEP concluded their comments on 81 FR 78954 by recommending the EPA finalize CSAPR as a compliance alternative to BART for SO<sub>2</sub> and revise the Phase 2 budgets, instead of withdrawing Texas from CSAPR.

The D.C. Circuit requires EPA to propose acceptable budgets consistent and confirm that those budgets are a BART alternative and allow Texas to remain in the CSAPR trading program. Source specific controls, then, would no longer be necessary since CSAPR as a BART alternative would provide a more cost-effective, less burdensome and flexible program for compliance with Texas' visibility obligations.

By EPA's reliance on the proposed withdrawal of Texas from the CSAPR trading program for SO<sub>2</sub> as the basis for the proposed Texas BART FIP, EPA is illegally proposing BART controls on facilities premised on a proposed rule. Buttressing the proposed FIP on a proposed-not-yet-finalized rule is inconsistent with the APA. EPA seems concerned with uncertainty created by the remand yet, this action by EPA creates its own uncertainty with regard to whether the proposed withdrawal will be finalized as proposed. The APA requires that an agency provide notice and an opportunity to comment on proposed rules. 5 U.S.C. 553(c). An agency must be open to taking comments and responding to them. This necessarily requires that EPA must consider comments from the public *before* finalizing a proposed rule. In fact, the comment period for the proposed withdrawal of Texas from the SO<sub>2</sub> CSAPR budgets ended *after* the date of the proposed BART FIP. Clearly, EPA gave itself no opportunity to consider public comment on the proposed withdrawal prior to relying on it as if it were final as proposed to justify the need for proposing source-specific BART. EPA's actions demonstrate that it had no intention of accepting public comment and had already made up its mind that the proposal would be

finalized as proposed, a direct contravention of the APA.

**Response:** Several contentions provided by this commenter are relevant to the action withdrawing Texas from Phase 2 CSAPR program budget, but given the finalization of that action they are not relevant to this action. We are required to address the BART requirements for both pollutants under our CAA FIP authority, in the absence of an approvable SIP. We are finalizing our proposal that NO<sub>x</sub> BART is met by continued participation in CSAPR and we are finalizing a BART alternative to address the SO<sub>2</sub> BART requirement. The BART alternative applies the CSAPR allowance allocations for SO<sub>2</sub> to all BART-eligible coal-fired EGUs, several additional coal-fired EGUs, and several BART-eligible gas-fired and gas/fuel oil-fired EGUs. In addition to being a sufficient alternative to BART, it secures reductions consistent with visibility transport requirements and is part of the long-term strategy to meet the reasonable progress requirements of the Regional Haze Rule.

We do not agree with the commenter's suggestion that we were not open to the consideration of comments in our proposed action or in any related actions in violation of the APA. Moreover, the assertion that EPA had made up its mind that any proposal would be finalized as proposed regardless of comments that might be offered is not correct. For efficiency and because of time constraints, our proposal for the NO<sub>x</sub> aspect of this action was based on a scenario of later finalization of the CSAPR remand response rule, but that does not mean that we did not fairly consider all comments on the CSAPR remand response rule or pre-decided the outcome of that rule. Our final decisions in this action reflect the final CSAPR remand rule, and consideration of comments on our proposal for this action.

**Comment:** Recommend the CSAPR budgets be revised. Revising the CSAPR budgets is supported by actual SO<sub>2</sub> emissions. The Texas EGU SO<sub>2</sub> and NO<sub>x</sub> emissions have steadily decreased and have fallen well below 2017 CSAPR budgets. These emissions are well below the original better-than-BART budgets for SO<sub>2</sub>. EPA's determinations that CSAPR is better-than-BART is still valid and supported even if emissions were increased.

We anticipate that EPA may respond that a September 9, 2017 Consent Decree deadline (derived from a case in which the EGUs were not party) did not permit time to consider comments before proposing the Texas BART FIP.

Clearly, the most expeditious approach would be for EPA to revise the invalid Phase 2 CSAPR budgets for Texas and propose that reliance on the revised budgets satisfies BART compliance. Any delays in addressing Texas' BART obligations are the result of EPA not establishing an acceptable CAIR or CSAPR program, and EPA's refusal to revise CSAPR Phase 2 budgets and not Texas' failure to agree to accept invalid CSAPR budgets. In fact, the D.C. Circuit instructed EPA to act "promptly" in revising the budgets.

Additionally, EPA's attempt to comply with a court deadline does not justify noncompliance with the APA. With its current proposal (Texas BART FIP), EPA has done nothing but create further uncertainty and violate the APA. EPA could have requested an extension of the deadline to revise the budgets, but did not. Consistent with the Administration's Executive Order on Reducing Regulation and Controlling Regulatory Costs, EPA could revise the CSAPR budgets adhere to CSAPR is better-than-BART, as they have in many other states, and remove two proposed regulations in doing so without the promulgation of another rule (proposed withdrawal of Texas from the CSAPR Phase 2 program and proposed source-specific BART for Texas source.) EPA should update the Phase 2 SO<sub>2</sub> budgets as directed and post-haste proceed to finalize CSAPR as a better alternative to the application of source-specific BART.

*Response:* Texas declined to submit a SIP to voluntarily participate in CSAPR and we have addressed our remand obligations for Phase 2 SO<sub>2</sub> budgets by ending Texas EGU participation in CSAPR for PM<sub>2.5</sub> transport. We agree, however, that Texas sources can continue NO<sub>x</sub> BART coverage under CSAPR and we are finalizing a BART alternative for SO<sub>2</sub> instead of establishing source-specific SO<sub>2</sub> BART determinations for units at those sources. The BART alternative applies the CSAPR allowance allocations for SO<sub>2</sub> to all BART-eligible coal-fired EGUs, several additional coal-fired EGUs, and several BART-eligible gas-fired and gas/fuel oil-fired EGUs. In addition to being a sufficient alternative to BART, it secures reductions consistent with visibility transport requirements and is part of the long-term strategy to meet the reasonable progress requirements of the Regional Haze Rule.

*Comment:* EPA is now proposing to require stringent emission control technology on units that have already met the BART obligations by participation in the regional trading

programs, CAIR, and its replacement, CSAPR. In this proposal, EPA has effectively removed a cost-effective compliance mechanism which has been in place for the duration of the first planning period, with costs and reductions that far exceed the regulatory obligation, with limited or no benefit to visibility. Because it was only late last week that EPA made available the technical documents that it claims would support its action and EPA has yet to provide us with the specific modeling supporting the proposal that we requested several weeks ago, We have not yet had an opportunity to thoroughly evaluate EPA's technical justification for the proposal.

*Response:* Our proposal did not effectively remove CSAPR, and we disagree with the comment's characterization of how and when CSAPR has been "in place." Regardless, we agree with the premise of the comment that SO<sub>2</sub> BART and NO<sub>x</sub> BART for Texas EGUs can be addressed by the BART alternatives we rely on in our final action. We also disagree that our proposal would have provided limited or no benefit to visibility to the extent it suggests our final action is not providing visibility benefits. Visibility benefits are being secured and preserved into the future by the final FIP measures.

*Comment:* Texas' SO<sub>2</sub> emissions are below the levels that EPA has found to be better-than-BART, and any reasonable assessment would conclude that trends of anticipated emissions in Texas will remain below those levels. EPA conducted two sensitivity analyses that both demonstrate that revised CSAPR emission levels for Texas are better-than-BART. We compared actual Texas EGU SO<sub>2</sub> emissions in 2015 and 2016 to the SO<sub>2</sub> emission levels that EPA found are better-than-BART. In both cases, Texas' actual emissions are well below the budgets that EPA has determined are better-than-BART.

*Response:* We are finalizing a BART alternative that applies the CSAPR allowance allocations for SO<sub>2</sub> to all BART-eligible coal-fired EGUs, several additional coal-fired EGUs, and several BART-eligible gas-fired and gas/fuel oil-fired EGUs. In addition to being a sufficient alternative to BART, it secures reductions consistent with visibility transport requirements and is part of the long-term strategy to meet the reasonable progress requirements of the Regional Haze Rule. To the extent, the comment suggests that current and anticipated emissions alone are enough to satisfy requirements for BART or a BART alternative, we disagree. As a fundamental matter, emissions

reductions must be enforceable to prevent undesired and unexpected increases in future years. Pointing to "trends"—i.e., unenforceable emissions levels without legal requirements against future increases—does not meet CAA requirements.

*Comment:* EPA must promulgate or approve a BART alternative for Texas, and must not finalize the unlawful and cost-prohibitive proposed Texas BART FIP. EPA should not, and lawfully may not, finalize its Proposed Texas BART FIP. The Proposed Texas BART FIP—like the predecessor Reasonable Progress Rule that is stayed and was remanded by the Fifth Circuit for reconsideration—is fundamentally flawed, cost-prohibitive to implement, and contrary to reasoned decision-making. EPA should address BART for Texas—not through federally-mandated specific controls on individual units—but through one of several available BART alternatives that will achieve equivalent or greater benefits at far less costs, as demonstrated by EPA's own prior modeling and sensitivity analyses.

Among those available alternatives is EPA's original proposed BART action for EGUs in Texas—reliance on Texas EGUs' participation in CSAPR's annual SO<sub>2</sub> and NO<sub>x</sub> trading Programs as BART compliance. That alternative remains the most expeditious and defensible path for finalizing a BART solution for Texas EGUs, and it is fully supported by EPA's previous CSAPR better-than-BART modeling and sensitivity analyses. Indeed, EPA's *only* lawful path forward to finalize a BART FIP for Texas by the current September 9, 2017 deadline in EPA's consent decree with Sierra Club is to finalize a CSAPR-for-BART FIP for Texas EGUs, as EPA signed in December 2014. For the many reasons discussed in Section II of these comments, EPA would be acting unlawfully were it to finalize the Proposed Texas BART FIP as issued in December 2016.

As an alternative to finalizing a CSAPR-for-BART FIP in September 2017, EPA could seek an extension of the consent decree deadline and proceed to work cooperatively with the State of Texas and Texas EGU operators to develop and propose for comment a different BART alternative for Texas, as it has done in other states. Such an alternative could, for example, establish SO<sub>2</sub> emission caps for Texas EGUs that are comparable to CSAPR budgets and would thus fall squarely within EPA's previous CSAPR=BART demonstration and sensitivity analyses for Texas. EPA has frequently worked with states and stakeholders to develop workable BART alternatives for EGUs, and it should do



the same here with Texas and Texas stakeholders, including Luminant.

Promulgation of a CSAPR-for-BART FIP is EPA's only lawful option for meeting the September 9, 2017 consent decree deadline. If EPA believes that it must finalize a BART rule for Texas EGUs by September 2017, EPA's only valid legal option is to finalize its 2014 proposed CSAPR-for-BART FIP. In that proposal, EPA specifically stated that it was proposing "a FIP to replace reliance on CAIR with reliance on the trading programs of CSAPR as an alternative to BART for SO<sub>2</sub> and NO<sub>x</sub> emissions from EGUs in the regional haze plan for Texas." In support, EPA explained that it "determined that [1] CSAPR provides for greater reasonable progress towards the national goal than would BART and [2] Texas is included in CSAPR for NO<sub>x</sub> and SO<sub>2</sub>." The same is true today, and, indeed, recent emission trends and EPA's sensitivity analyses for Texas confirm that CSAPR is and remains better-than-BART for Texas EGUs. Texas remains in the CSAPR annual programs for NO<sub>x</sub> and SO<sub>2</sub>, and EPA's determination that CSAPR provides for greater reasonable progress than the installation of BART remains scientifically sound. EPA has determined that "[CSAPR] achieves greater reasonable progress towards the national goal of achieving natural visibility conditions than source-specific BART." That conclusion remains valid today, and EPA has not undertaken any action to revise or rescind that rulemaking. In fact, the Eighth Circuit recently upheld EPA's conclusion that CSAPR is better than BART, stating that "EPA's explanation that the Transport Rule is better than source-specific BART is rational." There is no legal or technical barrier to EPA finalizing its original proposal of CSAPR-for-BART for Texas EGUs, and, indeed, that is EPA's only lawful current option if it were to meet the September 2017 deadline.

EPA's consent decree with Sierra Club does not prevent EPA from finalizing its original CSAPR-for-BART proposal in Texas. The consent decree that EPA entered into with Sierra Club was revised in December 2015 to provide two alternative deadlines for issuing a final rule that implements BART for Texas. First, the revised consent decree provides that by "[n]o later than December 9, 2016," EPA was to promulgate a final BART FIP for Texas, unless EPA had approved Texas's SIP or promulgated "a partial SIP" meeting the BART requirements under the regional haze program. Alternatively, the December 2016 deadline would be "extended to September 9, 2017," if

EPA signed a new proposed rule for BART by December 9, 2016. EPA signed the Proposed Texas BART FIP on December 9, 2016, thereby triggering the extension in the consent decree.

The consent decree, however, does not (and cannot) dictate the substance of EPA's final BART rulemaking under the extended deadline of September 9, 2017; the only prerequisite to invoking this extension is the signing of a proposal by December 9, 2016. EPA is not bound by the consent decree to finalize the terms of the current proposal or any similar source-specific BART rule; in fact, established principles of administrative law require EPA to remain open-minded during the rulemaking process. The consent decree merely established deadlines for EPA's pending course of action. Accordingly, for purposes of meeting the upcoming deadline of September 9, 2017, EPA is not prohibited by the consent decree from reverting to its 2014 proposal to finalize CSAPR as a BART alternative for Texas EGUs.

*Response:* We agree that the existence of the consent decree deadline does not dictate the substance of our action to address Clean Air Act requirements to meet the deadline. We disagree that our only possible lawful action for meeting the deadline is to impose a FIP based on CSAPR. 40 CFR 51.308(e) requires that states submit a SIP containing emission limitations that represent BART for BART eligible sources that may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area. Alternatively, 40 CFR 51.308(e) allows states to establish an emissions trading program or other alternative as long as the trading program or other alternative will achieve greater reasonable progress toward natural visibility conditions than BART. Where a state has failed to submit a SIP by the applicable deadline or has submitted a SIP that has been disapproved by the EPA, the CAA authorizes and requires EPA to promulgate a FIP that meets the requirements of the applicable federal statutes and regulations. Thus, EPA has the authority to promulgate a FIP containing emission limits that represent BART for BART eligible sources that may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area. Alternatively, EPA may establish an emissions trading program or other alternative which will achieve greater reasonable progress than BART. We are meeting requirements with valid use of discretion where appropriate to finalize

NO<sub>x</sub> BART as proposed, and to finalize a BART alternative with emission levels similar to CSAPR to address SO<sub>2</sub> BART. We are not able to revive the 2014 proposal to satisfy SO<sub>2</sub> BART for Texas EGUs because remand obligations have led to the removal of SO<sub>2</sub> trading requirements for Texas. We agree that this might have been a viable solution, but Texas declined to submit a SIP to voluntarily participate in CSAPR to fully preserve and accommodate this option.

*Comment:* The Proposed Texas BART FIP is not only cost-prohibitive, it is not necessary to achieve the goals of the Regional Haze Program and satisfy the requirements of the CAA. EPA's own prior modeling and analysis show that BART for these units is more than met by current SO<sub>2</sub> emission levels from Texas EGUs, and the stringent additional limits in the Proposed Texas BART FIP are not necessary.

EPA's sensitivity analyses for Texas's SO<sub>2</sub> CSAPR budgets and recent emission trends in Texas demonstrate that CSAPR remains better-than-BART. EPA's sensitivity analyses definitively confirm that EPA's determination that CSAPR is better-than-BART in Texas remains scientifically sound. When EPA issued the final rule promulgating the CSAPR-for-BART provision in June 2012, EPA confirmed that the upward adjustments to Texas's budgets under CSAPR did not adversely impact visibility conditions in nearby Class I areas. EPA initially calculated visibility improvements for nearby Class I areas based on a SO<sub>2</sub> budget for Texas of 243,954 tons/year. Following EPA's upward adjustments to the CSAPR budget due to errors in EPA's initial calculation, EPA revised its visibility improvement estimates based on a SO<sub>2</sub> budget of 294,471 tons/year. EPA's methodology demonstrates the expected visibility improvement as a result of implementing the CSAPR is better-than-BART provision under the original budget and the revised budget. Even with an SO<sub>2</sub> budget of nearly 300,000 tons for Texas, visibility at these Class I areas was projected to improve (not degrade).

Recent emissions data confirm EPA's prior determination—i.e., that Texas's emissions are well below the threshold that was previously determined to be better-than-BART. Implementation of CSAPR Phase 1 began in 2015, and implementation of Phase 2 began in 2017. For 2015 and 2016—during CSAPR Phase 1—Texas maintained its annual emissions of SO<sub>2</sub> and NO<sub>x</sub> well under the budgets established by EPA. The state-wide budget for annual SO<sub>2</sub> in Texas is 294,471 tons, and the state-

wide budget for annual NO<sub>x</sub> in Texas is 137,701 tons. These same budgets will apply during Phase 2, and there is no expectation that Texas EGUs will exceed these thresholds. In fact, EPA's own data demonstrate that Texas has not exceeded, or even approached, its annual allowance allocations for either SO<sub>2</sub> or NO<sub>x</sub> during Phase I of CSAPR. Emissions of SO<sub>2</sub> from Texas EGUs were 260,122 tons in 2015 and 244,233 tons in 2016. As for NO<sub>x</sub>, emissions from Texas EGUs were 107,921 tons in 2015 and 106,625 tons in 2016. Once CSAPR became effective in Texas in 2015, SO<sub>2</sub> emissions from Luminant's coal-fired EGUs dropped dramatically and have trended downward. There is no reason to believe, and EPA presented no reason, that this trend will reverse—and certainly not to a degree that Texas EGU SO<sub>2</sub> emissions would exceed CSAPR budgets or call into question EPA's CSAPR better-than-BART demonstration.

Texas has maintained its emissions well below the budgets established by CSAPR. The record establishes that BART for these units can be no more stringent than current emission levels, which are well below CSAPR budgets. In 2012, EPA concluded that “[CSAPR] achieves greater reasonable progress towards the national goal of achieving natural visibility conditions than source-specific BART.” EPA confirmed this determination in subsequent sensitivity analyses. So long as Texas's emissions remain below the CSAPR budgets, the operation of Texas EGUs in such a manner will continue to be better-than-BART.

Thus, the Proposed Texas BART FIP is based on a fundamental flaw by EPA—that BART for Texas EGUs must be “more emission reductions than projected under CAIR or CSAPR.” To the contrary, because Texas validly remains in the annual CSAPR programs for SO<sub>2</sub> and NO<sub>x</sub> combined with the fact that Texas EGU SO<sub>2</sub> emissions are well below the annual allocations, EPA has no valid basis to change course from its 2014 proposal to finalize CSAPR for BART in Texas in order to impose more stringent source-specific BART controls. EPA should proceed to finalize a FIP for Texas that approves CSAPR as a BART alternative for Texas EGUs.

*Response:* We agree that emissions similar to the CSAPR budgets would be better than BART and can be justified as a BART alternative. To the extent the comment suggests that merely pointing to current emissions level can satisfy the requirements of a BART alternative, we disagree. Those emissions levels must be made enforceable, and our final action accomplishes that. NO<sub>x</sub> BART for

EGUs is addressed by continued participation in CSAPR program for ozone transport. With regard to SO<sub>2</sub>, the BART alternative is designed to achieve SO<sub>2</sub> emission levels from Texas EGUs similar to the SO<sub>2</sub> emission levels that would have been realized from the SO<sub>2</sub> trading program under CSAPR. These measures will assure Texas' recent reductions of SO<sub>2</sub> and NO<sub>x</sub> will be maintained and improved upon in the future.

*Comment:* The D.C. Circuit's remand of CSAPR budgets does not create “uncertainty” that prevents EPA from finalizing CSAPR-for-BART for Texas EGUs. EPA says that it did not finalize its initial CSAPR-for-BART proposal for Texas EGUs because it noted some “uncertainty arising from the remand of Texas' CSAPR budgets” by the D.C. Circuit. EPA made that claim in the now-stayed January 2016 Reasonable Progress Rule. That claim was wrong when it was made then, and it is clearly wrong now. There is no “uncertainty.” The D.C. Circuit's remand does not prevent EPA from finalizing CSAPR as an SO<sub>2</sub> BART alternative for Texas EGUs.

First, EPA's claim that there is an “absence of CSAPR coverage for SO<sub>2</sub>” in Texas following the D.C. Circuit's remand is simply wrong. Texas EGUs are and have been regulated by a BART equivalent trading program for the entirety of the first planning period to date—first through CAIR and, after CAIR's replacement and up to the present day, through CSAPR. Texas EGUs are presently subject to CSAPR's annual SO<sub>2</sub> and NO<sub>x</sub> programs under the budgets remanded by the D.C. Circuit, which are budgets that EPA has confirmed as better-than-BART. EPA's prior determination that CSAPR is better-than-BART for all states, including Texas, is scientifically sound and remains a binding part of EPA's regulations. EPA may properly respond to the D.C. Circuit's remand by revising Texas's annual SO<sub>2</sub> budget (as instructed by the D.C. Circuit) *after* it finalizes the proposed CSAPR-for-BART FIP for Texas.

Second, regardless of when EPA responds to the D.C. Circuit's remand, EPA's own sensitivity analyses confirm that were EPA to properly respond to the remand by increasing Texas's annual SO<sub>2</sub> budgets so they do not over-control as instructed by the D.C. Circuit, those revised budgets would remain better-than-BART. EPA established a multi-step methodology to analyze whether increases in Texas's SO<sub>2</sub> annual budgets would change EPA's CSAPR better-than-BART determination (which remains part of EPA's binding

regulations). First, EPA's methodology for conducting a revised sensitivity analysis requires the identification of the Class I areas in and near Texas that that are most likely affected by Texas emissions. Second, EPA's analysis then “employ[s] [the] very conservative” assumption that “all of the visibility improvement” that EPA's CSAPR better-than-BART modeling predicted for these nine areas as a result of *all* CSAPR reductions from *all* covered states is “solely due to [reductions] from Texas.” Third, with this conservative assumption, EPA then “proportionally reduce[s]” the modeled visibility improvements at these nine Class I areas based on the corrected higher SO<sub>2</sub> budget for Texas. For example, if, in response to the D.C. Circuit's remand, EPA were to adjust Texas's budget to 350,000 tons, CSAPR would still be better-than-BART for Texas and other states. Such an adjustment would be equivalent to a 57% reduction in the number of SO<sub>2</sub> tons reduced compared to the original Texas CSAPR reductions that were modeled for EPA's original CSAPR better-than-BART modeling. EPA's methodology would thus reduce the visibility benefit accordingly by multiplying the visibility improvement at the Class I areas affected by Texas by a factor of 0.43. Thus, for example, the visibility improvement at Wichita Mountains from CSAPR, even after increasing Texas's budget to 350,000 tons, would be 0.688 deciview [1.6 deciview × 0.43 = 0.688]. This methodology could be applied to other budgets as well. Visibility improvements at nine Class I areas in or around Texas result from the application of EPA's sensitivity analysis of a hypothetical adjustment of Texas's CSAPR SO<sub>2</sub> budget to 350,000 tons per year. Thus, EPA's own modeling shows that visibility at these Class I areas is projected to improve (not degrade) and that the BART requirements are met even if the CSAPR budgets are increased.

*Response:* We have completed our response to the CSAPR remand by withdrawing Texas EGUs from CSAPR requirements for PM<sub>2.5</sub> transport. We did not act to upward adjust Texas' SO<sub>2</sub> budget. Whether that was a proper response to the remand or whether upward adjustments would have preserved the analytic demonstration that CSAPR is better than BART are not issues of concern with the present finalized action. To the extent the comment asserts that CSAPR budgets can be used to support a better than BART alternative, we agree with the comment and this concept is part of the



BART alternative and weight of the evidence that we deem to justify it.

*Comment:* The proposed rule is legally dependent on other pending proposed rulemakings. EPA may not proceed with this action without first finalizing other proposed rules under the CAA on which this action is based.

Since 2009, Texas EGUs have been subject to federal regulatory programs that have resulted in substantial reductions in the NO<sub>x</sub> and SO<sub>2</sub> emissions that have been targeted by EPA as contributing to interstate transport and haze. In compliance with EPA rules and precedent, Texas relied on CAIR, and then its replacement CSAPR as achieving reductions in haze precursors from EGUs that are “better than BART” in its Texas Regional Haze SIP submittal. In the unlawful proposed rule, EPA rejects its prior position that Texas EGUs are exempt from BART due to participation in CSAPR. Yet, Texas EGUs continue to this day to be subject to CSAPR requirements for NO<sub>x</sub> and SO<sub>2</sub>. While EPA has proposed to withdraw CSAPR SO<sub>2</sub> requirements for Texas EGUs, it has not yet done so and those EGUs remain subject to CSAPR allocations for both NO<sub>x</sub> and SO<sub>2</sub> under federal and state laws and permits. Additionally, EPA’s proposal to withdraw the CSAPR FIP with respect to SO<sub>2</sub> has been challenged in that rulemaking docket as unlawful and not in accordance with the court decision remanding that action to EPA.

As a result, EPA may not proceed with the disapproval of Texas’ reliance on CSAPR as “better than BART” until such time that the proposal is legally finalized in compliance with the Court decision that remanded that rule to EPA. Once that rule is legally finalized, then Texas should be given an opportunity to address whether and how that affects the state’s regional haze program before a FIP is considered.

*Response:* As was made clear by our proposal, we agree our rule is dependent on other proposed and now finalized rulemakings. Nothing in our proposal or final action prevents Texas from addressing the State’s regional haze program under its SIP planning authorities. Texas did not request that we withhold our action to withdraw CSAPR SO<sub>2</sub> requirements for Texas EGUs, and it did not submit comments to oppose that action. We disagree that anything in the sequencing of actions would allow us to suspend our FIP obligations when there is no SIP to address the requirements.

*Comment:* The effort to impose BART controls is the result of the proposed withdrawal of Texas from the CSAPR Phase 2 or annual trading program for

SO<sub>2</sub>. Compliance with regional haze obligations for BART-eligible facilities in Texas has depended on CAIR-equal BART and CSAPR-equal BART and removing Texas from CSAPR results in significant disruption and costs to planned future compliance for these facilities. EPA seeks these excessive controls which will achieve limited visibility benefits. EPA should take the proper approach and follow the remand without vacatur of the D.C. Circuit, revise the trading budgets and then finalize CSAPR as compliance strategy for BART in lieu of this proposal.

*Response:* We completed our response to the CSAPR remand in a separate action and refer Commenter there. We are finalizing a BART alternative for SO<sub>2</sub> BART.

#### *E. Comments on the Identification of BART-Eligible Sources*

*Comment:* We received comment from the owners of Coletto Creek stating that in the Texas Regional Haze SIP, TCEQ determined that Coletto Creek Unit 1 was not a BART-eligible source, based on its interpretation and application of its SIP-approved regional haze rules at 30 TAC Chapter 116, Subchapter M. In implementing its rules, TCEQ prepared questionnaires that sought the information needed to render its BART-eligibility determinations.<sup>66</sup> As a result of this TCEQ-led process, TCEQ determined that Coletto Creek Unit 1 was not BART-eligible because it was not built, and did not commence operation, until 1980, which is well after the August 7, 1977 applicability date. Coletto Creek Unit 1 has reasonably relied on the state’s eligibility determination in evaluating its obligations under the Regional Haze Rule program. EPA’s decision to reject TCEQ’s BART-eligibility determination for Coletto Creek Unit 1 under 30 TAC 116.1500 is unsupported.

*Response:* The commenter states that because Coletto Creek Unit 1 did not commence operations until 1980, it should be determined to be not BART-eligible, as was determined by the TCEQ. However, we believe the TCEQ erred in not listing Coletto Creek Unit 1 as being BART-eligible. The date test for BART-eligibility is whether the units was “in existence on August 7, 1977,” and began operation after August 7, 1962. The BART rule defines as “in existence on August 7, 1977” as follows (70 FR 39159):

What does “in existence on August 7, 1977” mean?

<sup>66</sup> See October 24, 2005 letter from Al Espinosa, Coletto Creek Power Station, #TX187–0023–0001, Docket Item No. EPA–R06–OAR–2016–0611–0023 at p. 6.

2. The regional haze rule defines “in existence” to mean that: “the owner or operator has obtained all necessary preconstruction approvals or permits required by Federal, State, or local air pollution emissions and air quality laws or regulations and either has (1) begun, or caused to begin, a continuous program of physical on-site construction of the facility or (2) entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of construction of the facility to be completed in a reasonable time.” 40 CFR 51.301.

The owner of Coletto Creek Unit 1 provided information that onsite construction began prior to August 7, 1977. Thus, Coletto Creek Unit 1 satisfies the above criteria as being “in existence on August 7, 1977.” Therefore, we disagree with the commenter and continue to find that Coletto Creek Unit 1 is BART-eligible. The NO<sub>x</sub> BART requirement for Coletto Creek is met by relying on CSAPR as an alternative to EGU BART for NO<sub>x</sub>. The SO<sub>2</sub> BART requirement is met by the intrastate trading program FIP that we are finalizing in this action and to which Coletto Creek will be subject. The PM BART requirement is met by our determination that the visibility impacts of PM emissions from Coletto Creek are too small to be considered to cause or contribute to visibility impairment at any Class I area and we determined the facility screens out and is not subject to PM BART.

#### *F. Comments on PM BART*

We previously proposed to disapprove the SIP’s subject-to-BART determinations for PM, on the grounds that the SIP had based these determinations on reliance on a BART alternative for SO<sub>2</sub> and NO<sub>x</sub> and, as a result, considered only the contribution of PM emissions to visibility impairment, and to adopt source-specific PM emission limits to fill the SIP gap. In that context, we received several comments related to PM BART issues. Now, however, we have determined it is appropriate to adopt a BART alternative to address SO<sub>2</sub> and NO<sub>x</sub> and therefore find Texas’ original SIP was correct in considering only the contribution of PM emissions. Considering only PM emissions, all sources considered in the Texas SIP were demonstrated to screen out of the need for source specific PM BART emission limits.

Also, as explained above, we have identified additional sources as BART-eligible that were not considered in the

2009 Texas Regional Haze SIP. As discussed elsewhere, we have determined that the impact due to PM emissions from these additional sources are also below the BART screen level. Thus, the SIP's determination that none of the BART-eligible EGUs are subject-to-BART for PM is correct and approvable. As a consequence, there is no SIP gap needing to be filled by a FIP. Because we are approving EGU PM BART screening determinations that result in no EGUs being subject to PM BART analysis, comments supporting or alleging errors in the details of our PM BART five-factor analysis and our proposed PM BART technology selections and emission limits are not relevant. We address in this section comments that are relevant to whether it is appropriate to approve the portion of this 2009 SIP submission and EPA's analysis in our proposal that determined that no PM emission limits for Texas EGUs are needed to satisfy the BART requirement because the visibility impacts of PM emissions from BART-eligible EGUs do not cause or contribute to visibility impairment. The information in section III.A. on the history of our proposals regarding the EGU PM BART element of the 2009 Texas SIP submission and EPA's proposals is useful background for understanding the comments and our responses on this topic.

Although we are not finalizing the MATS-based PM limits proposed as PM BART for the coal-fired EGUs, this regional haze action does not affect the existing MATS requirements for these units. We are also not finalizing the fuel oil sulfur percentage limits that we proposed for gas/fuel oil-fired EGUs; the same limits in existing permits for these sources are not affected by our action.

*Comments:* AEP states that we provide no basis for not approving the TCEQ's PM BART determination in 2016 or logical support for our decision to proceed with modeling PM in the proposed Texas BART FIP. AEP believes that when a state is provided statutory deference in implementing the Regional Haze program, EPA must support its decision for not approving the state's determination. While AEP also agrees that current PM requirements for sources complying with MATS are sufficient for meeting PM BART for Welsh Unit 1, it disagrees that PM BART is even warranted at all or that EPA has provided adequate basis for declaring that TCEQ's screening analysis is no longer reliable. AEP says that buried in a footnote, EPA grasps at some claim of error that Texas' PM BART determinations only looked at the impact of PM emissions on visibility,

that Texas can only take this approach when the BART requirements of NO<sub>x</sub> and SO<sub>2</sub> are satisfied, and that Texas' error of not identifying several PM BART eligible sources is grounds for disapproval. AEP believes this logic is unfounded and the situation is created by EPA's piecemeal approach to rulemaking. AEP agrees with EPA's conclusion that gas-fired units that occasionally burn fuel oil should have no further control. AEP will limit burning fuel oil with a sulfur content of 0.7% as currently required by its permit. However, EPA has not provided sufficient reasons to be addressing PM BART. EPA should finalize its earlier proposal to approve Texas' determination that sources in Texas are not subject to PM BART.

The Lower Colorado River Authority disagrees with the disapproval of the Texas PM BART demonstration.

The TCEQ and the Public Utilities Commission of Texas stated that our reliance on language in a guidance memo<sup>67</sup> to bar TCEQ from conducting pollutant-specific modeling to determining BART eligibility was incorrect. The TCEQ believes this memo did not state that the TCEQ's pollutant-specific modeling is only appropriate when BART for other pollutants is satisfied with a BART alternative such as the CAIR or CSAPR. The TCEQ believes the memo states that such modeling may be appropriate where an alternative program is used for other pollutants. The TCEQ also believes we incorrectly claimed that its SIP acknowledges PM-only modeling is inappropriate where an alternative to BART is not employed.<sup>68</sup>

The TCEQ states that our CAMx modeling supports the conclusions from the screening modeling conducted by it that shows these same units did not meet the 0.5 deciview (dv) threshold.<sup>69</sup> Furthermore, the TCEQ states that we found that for gas-fired units, PM emissions are "inherently low," and that existing controls plus compliance with the MATS filterable PM limit of 0.03 lb/MMBtu is already BART, further supporting its conclusion that there are no significant visibility impacts from PM emissions from these sources and BART controls for PM are unnecessary. Thus, the TCEQ reasons, a FIP for PM BART is unnecessary and the EPA

should approve the screening modeling the TCEQ conducted, as we proposed to do in January 2015.

Luminant provided comments similar to those above. Luminant added that it believes that Texas remains in CSAPR so there is no basis for us to deviate from our prior proposal to approve Texas's PM BART determination. Luminant also stated that our reliance on a Ninth Circuit Court decision to support our rejection of pollutant-specific BART screening is incorrect because the case in point relied upon the BART de minimis exemption, which does not apply in this instance.

*Response:* We are approving the EGU PM BART element of Texas's 2009 SIP submittal. Under the combination of reliance on the CSAPR ozone-season NO<sub>x</sub> trading program to satisfy NO<sub>x</sub> BART and reliance on the FIP's intrastate trading program for SO<sub>2</sub> emissions to satisfy SO<sub>2</sub> BART, it is appropriate for determinations of whether a BART-eligible EGU is subject to BART for PM to be based only on the visibility impact of the source's PM emissions. It is not necessary for us to respond to the comments stating that a PM-only analysis would be appropriate even if both SO<sub>2</sub> and NO<sub>x</sub> were not addressed by trading programs.

In particular, TCEQ's comments are correct that the BART Guidelines do not prohibit pollutant-specific screening. The July 19, 2006 guidance memo states that EPA does not generally recommend a pollutant-specific screening approach, however, such a screening approach may be appropriate for PM in certain situations. The memo provides the situation of a state relying on CAIR for NO<sub>x</sub> and SO<sub>2</sub> BART as an example where pollutant-specific screening for PM may be appropriate. We agree with TCEQ that the memo's intention is not to limit PM-only analysis to SIPs that rely on CAIR. While we disagree with TCEQ's position that a PM-only analysis is appropriate in a situation involving source-specific SO<sub>2</sub> BART emission limits, the approaches promulgated here for SO<sub>2</sub> and NO<sub>x</sub> BART are BART alternatives and are similar to the CAIR situation described in the memo. Therefore, we find that the pollutant specific PM screening approach in TCEQ's original 2009 SIP submittal is appropriate and demonstrates that the sources covered by the BART alternative program for SO<sub>2</sub> screen out of PM BART. For BART-eligible EGU sources not participating in the BART alternative program for SO<sub>2</sub>, all these sources screened out of BART for all visibility impairing pollutants utilizing model plants and CALPUFF modeling as described in our proposed rule and

<sup>67</sup> Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations, Joseph Paisie, EPA Geographic Strategies Group, July 19, 2006.

<sup>68</sup> Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan, BART FIP TSD, Docket ID No. EPA-R06-OAR-2016-0611-004, page 26, footnote 39.

<sup>69</sup> *Id.* at 82.

BART Screening TSD. Therefore, we are approving the determination that no Texas EGUs are required to have source-specific PM emission limits in order for the BART requirement to be met. This approval is consistent with our December 2014 proposal for PM BART, in which EPA proposed to rely on Texas' CSAPR participation for SO<sub>2</sub> and NO<sub>x</sub> BART and to approve the SIP's determinations regarding the need for PM emission limits. See 79 FR 74817, 74848 (January 13, 2015). We are also determining that other sources that EPA identified in our December 2016 proposal as BART-eligible that were not identified as BART eligible in TCEQ's 2009 Regional Haze SIP are also screened out from PM BART.

*Comment:* The Sierra Club states that we should finalize our proposed disapproval of Texas's PM BART determinations, which assumed that SO<sub>2</sub> and NO<sub>x</sub> emissions contributing to PM formation would be regulated under CSAPR, see 82 FR at 935. Following the D.C. Circuit Court's remand of CSAPR, SO<sub>2</sub> emissions from Texas sources are no longer limited by CSAPR. The assumption underlying Texas's PM BART determinations—that CSAPR would limit emissions of PM precursors from Texas sources—is now inaccurate; therefore, reasons the Sierra Club, we must disapprove the State's PM BART determinations.

*Response:* We note that the D.C. Circuit Court remanded the budget for Texas EGUs in the CSAPR trading program for SO<sub>2</sub> without vacatur, so the commenter's statement that Texas EGUs are no longer limited by CSAPR was not true at the time the comment was offered. It is true now as a result of our recent action to remove Texas EGUs from the annual SO<sub>2</sub> and NO<sub>x</sub> trading programs. However, a large set of Texas EGUs will, under the final FIP, be subject to CSAPR for ozone-season NO<sub>x</sub> and the intrastate trading program FIP for SO<sub>2</sub>. For these EGUs, the BART guidelines and our guidance allow for the subject-to-BART for PM determination to be based on only the impacts of PM emissions on visibility. For the BART-eligible EGUs that will not be required to participate in the FIP's intrastate trading program, our analysis indicates that even when all three pollutants are included in the modeling, all of these sources affect visibility at surrounding Class I Areas by less than 0.5 dv, thus screening out of being subject to PM BART.

*Comment:* EPA in its previous rulemaking on the reasonable progress measures for the Texas and Oklahoma regional haze plans initially proposed to accept Texas' finding that no PM BART

controls were necessary for EGUs "based on a screening analysis of the visibility impacts from just PM emissions . . . ." In its current Texas BART rulemaking, EPA states that "[i]n connection with changed circumstances on how Texas EGUs are able to satisfy NO<sub>x</sub> and SO<sub>2</sub> BART, we are now proposing to disapprove the portion of the Texas Regional Haze SIP that evaluated the PM BART requirements for EGUs." The changed circumstances EPA refers to is the removal of Texas sources from the SO<sub>2</sub> caps of the CSAPR rule. Unless a source is subject to a BART alternative or is otherwise determined to be exempt from BART for a particular pollutant, EPA's regulations and BART guidelines do not generally provide for exemptions from a five-factor BART analysis for a specific pollutant. Under EPA's BART Guidelines and the definition of BART, once a source has been determined to be subject to BART, a five-factor BART analysis must be done for each pollutant pursuant to 40 CFR part 51, 51.301 and Appendix Y, section IV.A. So, EPA is correct that it must address BART for PM for the BART-subject sources in Texas.

*Response:* The premise in the comment that EGUs in Texas will not be subject to a BART alternative for both NO<sub>x</sub> and SO<sub>2</sub> is incorrect, given the content of this final action.

*Comment:* Coletto Creek Unit 1 should not be subject to any FIP emission limits, because it should not be determined to be BART-eligible.

*Response:* Texas' 2009 SIP submission did not include Coletto Creek Unit 1 as a BART-eligible source and consequently the SIP did not present any analysis of whether it is subject-to-BART, while we are determining in this action that Coletto Creek Unit 1 is BART-eligible. However, we evaluated the available modeling and other analyses and we have concluded that this information shows minimal impacts from PM from this particular BART-eligible source. Modeled PM impacts from Coletto Creek Unit 1 are expected to be much less than 0.32 delta deciviews (see Section III.4).

*Comment:* Requiring the Stryker and Graham units to switch to ultra-low-sulfur diesel would significantly improve visibility. Requiring this switching at Stryker would improve visibility by more than 0.5 dv at Caney Creek, and switching to ultra-low-sulfur diesel at Graham would improve visibility by 0.85 dv at Wichita Mountains.

*Response:* Insofar as this is a comment on our proposed source-specific FIP emission limits to address BART for

PM, it is not necessary for us to respond because we are approving the SIP and not promulgating any such limits in this action. We note that the cited visibility benefits of switching to low-sulfur fuel reflect assumed reductions in both direct PM emissions and SO<sub>2</sub> emissions from these two sources. The Stryker and Graham units are both covered by the intrastate trading program for SO<sub>2</sub> and CSAPR for NO<sub>x</sub>, so it is appropriate that the subject-to-BART determination be made on the basis of the impacts of direct PM emissions alone. Those impacts are less than 0.5 dv.

*Comment:* Texas identified 126 sources as BART-eligible or potentially BART eligible.

Yet Texas ultimately concluded that no BART-eligible source is subject to BART. Texas's determination is based in part on the unsupported selection of 0.5 dv as the threshold for contribution to visibility impairment. EPA must disapprove Texas's determination as to the sources subject to BART. Texas adopted 0.5 dv as the threshold for "contribution" to visibility impairment. Texas provided no justification for using a 0.5 dv threshold. There is no documentation in the record as to how or why Texas selected this threshold, and there is no legal support for such threshold. EPA's BART Guidelines do not authorize states automatically to use a 0.5 dv contribution threshold. Instead, the BART Guidelines state only that "any threshold that you use for determining whether a source 'contributes' to visibility impairment should not be higher than 0.5 deciviews. In the next sentence, the Guidelines instruct each state that it "should consider the number of emissions sources affecting the Class I areas at issue and the magnitude of the individual sources' impacts." There is no evidence in the record that Texas ever conducted this analysis. Furthermore, the Guidelines conclude that "a larger number of sources causing impacts in a Class I area may warrant a lower contribution threshold." As Texas's list of 126 BART eligible sources indicates, a large number of sources impact the Class I areas in Texas and in neighboring states. Indeed, the subset of sources that screened out of BART based on individual modeling have a combined, baseline impact of nearly 10 deciviews. Thus, the situation in Texas is exactly what EPA had in mind when it noted that a contribution threshold lower than 0.5 dv may be appropriate. Had Texas followed the BART Guidelines, it may well have selected a threshold lower than 0.5 dv. Using a lower contribution threshold would change Texas's conclusion as to which



sources are subject to BART because there are sources with a baseline impact just below 0.5 deciviews. EPA has a statutory responsibility to ensure that a SIP meets all applicable Clean Air Act requirements and is supported by the record. Here, Texas's use of a 0.5 dv threshold has two fatal flaws: It is not based on the analysis prescribed by the BART Guidelines, and it is not supported by any analysis whatsoever in the record. Therefore, EPA must disapprove Texas's conclusions that sources are not subject to BART, where Texas screened out sources because of a visibility impact below 0.5 deciviews.<sup>70</sup>

*Response:* EPA's BART Guidelines allow states conducting source-by-source BART determinations to exempt sources with visibility impacts as high as 0.5 dv. While we agree that a state may choose to use a lower threshold, this should be based on consideration of not only the number of sources, but the proximity to the Class I area and the potential combined visibility impacts from a group of sources. States have the discretion within the CAA, Regional Haze Rule, and BART Guidelines to set an appropriate contribution threshold considering the number of emissions sources affecting the Class I areas at issue and the magnitude of the sources' impacts.

#### *G. Comments on EPA's Source-Specific SO<sub>2</sub> BART Cost Analyses*

*Comment:* We received a large number of comments from the EGU owners covered under our proposal and environmental groups concerning various aspects of the SO<sub>2</sub> BART cost analyses we performed for the coal-fired EGUs. These comments included both criticisms of and support for our basic approach, the tools we used, and various individual aspects of our cost analyses. We also received Confidential Business Information (CBI) comments from the owner of one of the EGUs covering the same areas.

We also received comments from environmental groups stating that we should have required the gas-fired units that occasionally burn fuel oil to minimally switch to Ultra-Low-Sulfur Diesel (ULSD) in lieu of our proposed BART determination that these units be

limited to 0.7% fuel oil by weight. These commenters argued that our estimate of the price per gallon for ULSD was too high and that in any case, the total annual cost to make the switch is very low. They also argue that requiring the Stryker and Graham units to switch to ultra-low-sulfur diesel would significantly improve visibility.

*Response:* Due to the comments we received requesting a BART alternative in lieu of source-specific EGU BART determinations, we are finalizing a SO<sub>2</sub> trading program as an alternative to source-by-source BART. As a consequence, we believe that comments concerning the SO<sub>2</sub> BART cost analyses we performed on the coal-fired EGUs and these gas-fired units that occasionally burn fuel oil are no longer relevant. The trading program, by its nature, provides sources with flexibility in meeting the requirements. As a result, we expect compliance for sources to be extremely cost-effective. The program addresses both BART eligible and non-BART eligible EGUs. The combination addresses 89% of the emissions (based on 2016 annual emissions) that would have been addressed by CSAPR and, as a result, EGU emissions in Texas will be similar to emission levels anticipated in the CSAPR better than BART demonstration and will achieve greater reasonable progress than BART.

#### *H. Comments on EPA's Modeling*

1. Modeling Related to Screening out BART-eligible sources based on CALPUFF Modeling and Model Plant analysis

*Comment:* We received comments stating that we used an outdated version of CALPUFF and CALMET in our CALPUFF analyses and there are more recent EPA approved versions of CALPUFF and CALMET. The commenter indicated that there are more recent non-regulatory versions of CALPUFF (such as version 6.4) that include a number of technological improvements that could have been used. The commenter also indicated we did not follow USDA Forest Service Guidance that recommend using Mesoscale Model Interface Program (MMIF) for generating met fields for CALPUFF.<sup>71</sup> The commenter concluded that EPA's CALPUFF analysis was less reliable because of these issues.

*Response:* For those BART-eligible EGUs that are not covered by the BART alternative for SO<sub>2</sub>, we are finalizing determinations that those EGUs are not

subject-to-BART for NO<sub>x</sub>, SO<sub>2</sub> and PM as proposed, based on the methodologies utilizing model plants and CALPUFF modeling as described in our proposed rule and BART Screening TSD. As mentioned in the BART screening TSD, we used versions (CALPUFF v5.8.4 and an existing CALMET data set that utilized CALMET v5.53a) that do not significantly differ from the current regulatory versions of CALPUFF (v5.8.5) and CALMET (v5.8.5). The current regulatory versions do include some additional bug fixes but the bugs that were fixed are not expected to significantly change the results for the modeling assessments we have done. The 2016 USDA Forest Service Guidance was not released until August of 2016 and no BART modeling was conducted by states and RPOs using MMIF. The USDA Forest Service Guidance is more germane for future SIP developments and any visibility analyses for other regulatory assessments in the future.

In considering the comment that we should use a more recent version of CALPUFF (6.4) or an earlier version 6.112, we considered the regulatory status of CALPUFF for visibility analyses and what analyses are needed to utilize an updated CALPUFF modeling system. The requirements of 40 CFR 51.112 and 40 CFR part 51, Appendix W, Guideline on Air Quality Models (GAQM) and the BART Guidelines which refers to GAQM as the authority for using CALPUFF, provide the framework for determining the appropriate model platforms and versions and inputs to be used. Because of concern with CALPUFF's treatment of chemical transformations, which affect AQRVs, EPA has not approved the chemistry of CALPUFF's model as a "preferred" model. The use of the regulatory version is approved for increment and NAAQS analysis of primary pollutants only. Currently, CALPUFF Version 5.8, is subject to the requirements of GAQM 3.0(b) and as a screening model, GAQM 4. CALPUFF Versions 6.112 and 6.4 have not been approved by EPA for even this limited purpose. The versions of CALPUFF, version 6.112 or 6.4, that the commenter recommended could be used to provide modeling analyses of BART eligible sources that have not gone through a full regulatory review in accordance with 40 CFR part 51 Appendix W Section 3.2.2. Furthermore, the currently available information does not support the approval of these versions of the CALPUFF model for use in making BART determinations. In addition, if these versions of the model

<sup>70</sup> This comment was submitted to a public docket (separate from the docket established for this action), in response to our December 2014 proposal (79 FR 74817, 74853–54 (Dec. 16, 2014)) to approve the subject-to-BART determinations in Texas' 2009 SIP submission and to disapprove the reasonable progress and some other elements of that SIP submission. See Docket Item No. EPA-R06-OAR-2014-0754-0067. We never took final action on PM BART, and did not respond to the comment. We are responding to it today because of its relevance to this final action.

<sup>71</sup> USDA Forest Service, Guidance on the Use of the Mesoscale Model Interface Program (MMIF) for Air Quality Related Values Long Range Transport Modeling Assessments (Aug. 2016).

were acceptable for use, EPA would have to reconsider whether using the 98th percentile impact for determining impairment was appropriate. Therefore, EPA does not believe the use of CALPUFF version 6.112 or 6.4 is appropriate for this rulemaking. We believe we have made the appropriate choice in using CALPUFF version 5.8. For further discussion, see our Modeling RTC and the response to comments in our previous New Mexico Final FIP in 2011.<sup>72</sup>

*Comment:* We received a number of comments concerning the acceptable distances/range for which CALPUFF modeling results should be used for BART screening. A number of commenters indicated that EPA has repeatedly stated that 300 km should be the maximum distance for CALPUFF modeling results and even cited to some past actions (several FIPs—Arkansas, Oklahoma, Montana, and New Mexico) where EPA has indicated that 300 km was the general outer distance for CALPUFF. Commenters also raised past promulgation of CALPUFF in 2003 and IWAQM guidance/reports to support the claim that 300 km is the acceptable outer range of CALPUFF. TCEQ commented we should not use CALPUFF for distances beyond 400 km. Two commenters indicated that EPA had inappropriately reported CALPUFF results for distances of 412 km and 436.1 km, well outside of 300 km. Another commenter indicated we included some model plants at distances greater than 400 km in our model plant screening analysis.

Other commenters indicated that we should use the modeling results from CALPUFF for BART screening at ranges much greater than 400 km. They stated that CALPUFF over-predicts visibility impacts at distances greater than 300 km; therefore, CALPUFF is an acceptable and conservative tool for screening BART sources at large distances from Class I areas. We received comments from several different companies (NRG, LCRA, Coletto Creek, and Luminant) that provided contractor (AECOM) analysis with opinions on the acceptable range of CALPUFF. AECOM's report for LCRA included CALPUFF modeling results for 14 Class I areas with distances out to more than 1000 km and asserted that TCEQ and EPA had utilized CALPUFF previously in screening out sources from being subject to a full BART analysis in the 2009 Texas regional haze SIP submission, our 2014 proposal, and our 2015 final action. Some comments were supportive of using CALPUFF

results at distances of 400–1000 + km,<sup>73</sup> while others opposed using CALPUFF beyond 300 km if the results did not screen a facility out of a full BART analysis.

A number of commenters also raised concerns with the accuracy of the CALPUFF model and several uncertainty issues related to the CALPUFF model and results from the model. We also received the comment that CALPUFF's regulatory status as a preferred model recently changed and that this change raises a question of whether CALPUFF should have been used for the Proposed Texas BART FIP.

*Response:* As previously discussed and included in our record for our proposal we did use direct CALPUFF modeling results of facilities out to 432 km for some very large EGU facilities (very large emissions from tall stacks). We also used CALPUFF for model plants for screening of sources beyond 360 km to a Class I Area, but the actual distance to a Class I Area was 360 km or less for each of the model plants used for screening of sources. In our 2014 proposed action<sup>74</sup> and the 2015 final action<sup>75</sup> on Texas regional haze we approved the use of CALPUFF to screen BART-eligible non-EGU sources at distances of 400 to 614 km for some sources. In those actions, we weighed the modeling results that were mostly well below 0.5 delta-dv with the potential uncertainty of CALPUFF results at these greater distances outside the typical range of CALPUFF in deciding how to use the results in screening of facilities. We disagree with the comment that it was inappropriate to rely on CALPUFF to screen BART-eligible EGU sources at ranges beyond 400 km and that it would not be

consistent with our past approval of the BART screening modeling included in the 2009 Texas Regional Haze SIP of non-EGU BART sources.<sup>76</sup>

It has been asserted by the commenters that CALPUFF overestimates visibility impacts at greater distances (greater than 300/400 km) and therefore some commenters claimed that use of CALPUFF is conservative and acceptable for screening BART sources. We disagree with this comment. EPA has seen situations of both under-prediction and over-prediction at these greater distances. EPA has indicated historically that use of CALPUFF was generally acceptable at 300 km and for larger emissions sources with elevated stacks. We and FLM representatives have also allowed or supported the use of CALPUFF results beyond 400 km in some cases other than the Texas actions as pointed out by commenters.<sup>77</sup> EPA has a higher confidence level with results within 300 km and when analysis of impacts at Class I areas within 300 km is sufficient to inform decisions on BART screening and BART determinations, we have often limited the use of CALPUFF results to within 300 km as there are fewer questions about the suitability of the results. However, that does not preclude the use of model results for sources beyond the 300 km range with some additional consideration of relevant issues such as stack height, size of emissions, etc. As one commenter pointed out, EPA and FLM representatives have utilized CALPUFF results in a number of different situations when the range was between 300–450 km. The model plants utilized in our model plant screening analysis were modeled at distances of 300–360 km from the Class I area. In our model plant analysis, we found that in some situations there was a difference in whether or not a source screened out based on the distance between the model plant and the Class I area. Some initial model plant runs were done at distances of 201–300 km from a Class I Area and yielded higher Q/D ratios than the same model plant evaluation with the same modeled visibility impact at 350–360 km (only 20% more than 300 km).<sup>78</sup> This difference and the lower Q/

<sup>73</sup> For example, see comment from Andrew Gray, Footnote 11, "For example, Texas used CALPUFF to perform BART modeling for Alcoa Inc, RN100221472 (nearest Class I area 490 km); Equistar Chemicals LP, RN 100542281 (nearest Class I area 517 km); ExxonMobil, RN102579307 and RN102450756 (nearest Class I areas 526 and 482 km, respectively); and Invista, RN104392626 and RN102663671 (nearest Class I areas 472 and 614 km, respectively). See February 25, 2009 Texas Regional Haze Plan, Chapter 9 at pages 9–9 through 9–14, available at [https://www.tceq.texas.gov/airquality/sip/bart/haze\\_sip.html](https://www.tceq.texas.gov/airquality/sip/bart/haze_sip.html). South Dakota used CALPUFF for Big Stone's BART determination, including its impact on multiple Class I areas further than 400 km away, including Isle Royale, which is more than 600 km away. See 76 FR 76656. Nebraska relied on CALPUFF modeling to evaluate whether numerous power plants were subject to BART where the "Class I areas [were] located at distances of 300 to 600 kilometers or more from" the sources. See Best Available Retrofit Technology Dispersion Modeling Protocol for Selected Nebraska Utilities, p. 3. EPA Docket ID No. EPA–R07–OAR–2012–0158–0008. EPA has approved reliance on these models."

<sup>74</sup> 79 FR 74818 (Dec. 16, 2014).

<sup>75</sup> 81 FR 296 (Jan. 5, 2016).

<sup>76</sup> We note that the Fifth Circuit Court of Appeals remanded the rule in its entirety. See *Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016).

<sup>77</sup> See comments from Andrew Gray, n 11 (which is listed in its entirety earlier in this document) citing examples of modeled impacts from sources at distances greater than 300 km in Texas, Nebraska, and South Dakota.

<sup>78</sup> We did iterative modeling with the model plants to model emissions at a level that would yield a value just under the screening level of 0.5

<sup>72</sup> 76 FR 52388, 52431–52434 (Aug. 22, 2011).



D modeling for the model plant located at a greater distance from the Class I area indicated that using the model plant modeling at 300 km or less was overly conservative when we are evaluating facilities at distances of 360–600 km. Therefore, we chose the range that we thought was appropriate in the context of the distances of the sources being evaluated with that model plant. A distance of 300–360 km also fell within a range for which we have evaluated CALPUFF results a number of times and felt comfortable with using for large elevated point sources, and in most cases the comparison of Q/D ratios of the facility to model plant were not similar and the facility screened out with a significant safety margin.<sup>79</sup>

We note that we also had direct CALPUFF screening of some coal-fired plants out to 412 km with NO<sub>x</sub>, SO<sub>2</sub>, and PM in our proposal. The impacts of these facilities in the proposal screening modeling were typically very large and well above the 0.5 del-dv, so even considering that there are more uncertainties at distances greater than 300 km the impacts were large enough that it was clear that these facilities would have impacts above the threshold based on impacts from the 3 pollutants.<sup>80</sup> The BART Guidelines indicate other models may be used on a case-by-case basis. CAMx is a photochemical modeling platform with a full chemistry mechanism that is also suited for assessing visibility impacts from single facilities/sources at longer distances where CALPUFF is more uncertain (such as distances much greater than 300 km). Texas and EPA have previously approved the use of CAMx for determining source impacts for BART screening purposes, and we also decided to supplement our CALPUFF analysis for some large coal-fired sources with CAMx modeling. Our CAMx modeling of these coal-fired sources in the proposal further supported the magnitude of the assessed impacts were well above 0.5 del-dv (NO<sub>x</sub>, SO<sub>2</sub>, and PM) for these facilities that fell into the greater than 300 km

del-dv, typically a value around 0.49 del-dv. In these model distance sensitivity runs when we used the same number of sources and stack parameters but varied the emissions to yield 98th percentile max impacts of approximately 0.49 del-dv. We found that model plants at 350–360 km range had lower resulting Q/Ds than the same model plants at 300 km, thus sources more easily screened out using model plants at 350–360 km.

<sup>79</sup> See our Screening of BART TSD.pdf (EPA-R06-OAR-2016-0611-0005.pdf); most sources had Q/D values on the order 30–50% of the critical Q/D from the model plant.

<sup>80</sup> *Id.* For example, Big Brown was 404 km from WIMO and the maximum impacts with NO<sub>x</sub>, SO<sub>2</sub>, and PM was 4.265 del-dv (over 8 times the 0.5 del-dv threshold).

range. We note that this screening modeling for these coal-fired facilities directly modeled with CALPUFF beyond 300 km and also modeled with CAMx is not pertinent to this final action since these coal-fired sources are participating in the SO<sub>2</sub> trading program and we are not finalizing subject to BART determinations for these sources.

Due to the comments we received requesting a BART alternative in lieu of source-specific EGU BART determinations, we are finalizing a SO<sub>2</sub> trading program as an alternative to source-by-source BART. With the NO<sub>x</sub> BART coverage from CSAPR, all the BART-eligible sources participating in the SO<sub>2</sub> trading program only have PM emissions that have to be assessed for screening and potential subject to PM BART determinations. As discussed elsewhere, we are approving the determination in the 2009 Texas Regional Haze SIP that PM BART emission limits are not required for any Texas EGUs.

We disagree with the commenter's characterization of uncertainties raised that invalidate the CALPUFF modeling results. We respond to comments raised briefly here and in our Modeling RTC. We have also responded to a number of these issues in our past FIP actions.<sup>81</sup>

In response to the court's 2002 finding in *American Corn Growers Ass'n. v. EPA*<sup>82</sup> that we failed to provide an option for BART evaluations on an individual source-by-source basis, we had to identify the appropriate analytical tools to estimate single-source visibility impacts. The 2005 BART Guidelines recommended the use of CALPUFF for assessing visibility (secondary chemical impacts) but noted that CALPUFF's chemistry was fairly simple and the model has not been fully tested for secondary formation and thus is not fully approved for secondary-formed particulate. In the preamble of the final 2005 BART guidelines, we identify CALPUFF as the best available tool for analyzing the visibility effects of individual sources, but we also recognized that it is a model that includes certain assumptions and uncertainties.<sup>83</sup> Evaluation of CALPUFF model performance for dispersion (no chemistry) to case studies using inert tracers has been performed.<sup>84</sup> It was

<sup>81</sup> For example, see Arkansas FIP, 81 FR 66332, 66355–66413 (Sept. 27, 2016) and the Response to Comments, Docket No. EPA–R06–OAR–2015–0189.

<sup>82</sup> *Am. Corn Growers Ass'n v. EPA*, 291 F.3d 1 (D.C. Cir. 2002).

<sup>83</sup> 70 FR 39104, 39121 (July 6, 2005).

<sup>84</sup> “[M]ore recent series of comparisons has been completed for a new model, CALPUFF (Section A.3). Several of these field studies involved three-to-four hour releases of tracer gas sampled along

concluded from these case studies the CALPUFF dispersion model had performed in a reasonable manner, and had no apparent bias toward over or under prediction, so long as the transport distance was limited to less than 300km.<sup>85</sup> <sup>86</sup> As discussed above EPA has indicated historically that use of CALPUFF was generally acceptable at 300 km and for larger emissions sources with elevated stacks we and FLM representatives have also allowed or supported the use of CALPUFF results beyond 400 km in some cases.

In promulgating the 2005 BART guidelines, we responded to comments concerning the limitations and appropriateness of using CALPUFF.<sup>87</sup> In the 2005 BART Guidelines the selection of the 98th percentile value rather than the maximum value was made to address concerns that the maximum may be overly conservative and address concerns with CALPUFF's limitations.<sup>88</sup>

In the 2003 revisions to the Guideline on Air Quality Models, CALPUFF was added as an approved model for long range transport of primary pollutants. At that time, we considered approving CALPUFF for assessing the impact from secondary pollutants but determined that it was not appropriate in the context of a PSD review because the impact results could be used as the sole determinant in denying a permit.<sup>89</sup> However, the use of CALPUFF in the context of the Regional Haze rule provides results that can be used in a relative manner and are only one factor in the overall BART determination. We determined the visibility results from CALPUFF could be used as one of the

arcs of receptors at distances greater than 50km downwind. In some cases, short-term concentration sampling was available, such that the transport of the tracer puff as it passed the arc could be monitored. Differences on the order of 10 to 20 degrees were found between the location of the simulated and observed center of mass of the tracer puff. Most of the simulated centerline concentration maxima along each arc were within a factor of two of those observed.” 68 FR 18440, 18458 (April 15, 2003), 2003 Revisions to Appendix W, Guideline on Air Quality Models.

<sup>85</sup> Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long-Range Transport Impacts. Publication No. EPA–454/R–98–019. Office of Air Quality Planning & Standards, Research Triangle Park, NC. 1998.

<sup>86</sup> 68 FR 18440, 18458 (Apr. 15, 2003). (2003 Revisions to Appendix W, Guideline on Air Quality Models).

<sup>87</sup> 70 FR 39104, 39121 (July 6, 2005).

<sup>88</sup> *Id.*, at 39121. “Most important, the simplified chemistry in the model tends to magnify the actual visibility effects of that source. Because of these features and the uncertainties associated with the model, we believe it is appropriate to use the 98th percentile—a more robust approach that does not give undue weight to the extreme tail of the distribution.”

<sup>89</sup> 68 FR 18440 (Apr. 15, 2003).

five factors in a BART evaluation and the impacts should be utilized somewhat in a relative sense because CALPUFF was not explicitly approved for full chemistry calculations.<sup>90</sup> We note that since the BART Guidelines were finalized in 2005 there has been more modeling with CALPUFF for BART and PSD primary impact purposes and the general community has utilized CALPUFF in the 300–450 km range many times (a number of examples were pointed out by a commenter) and EPA and FLM representatives have weighed the additional potential uncertainties with the magnitude of the modeled impacts in comparison to screening/impact thresholds on a case-by-case basis in approving the use of CALPUFF results at these extended ranges.

We disagree with the commenter's general statement that there is an acknowledged over-prediction of the CALPUFF model or an acknowledged inaccuracy at low impact levels, and that the actual visibility impacts from the BART sources are lower. The CALPUFF model can both under-predict and over-predict visibility impacts when compared to predicted visibility impacts from photochemical grid models. See our Modeling RTC for more detailed response.<sup>91</sup>

CALPUFF visibility modeling, performed using the regulatory CALPUFF model version and following all applicable guidance and EPA/FLM recommendations, provides a consistent tool for comparison with the 0.5 dv subject-to-BART threshold. The CALPUFF model, as recommended in the BART guidelines, has been used for almost every single-source BART analysis in the country and has provided a consistent basis for assessing

the degree of visibility benefit anticipated from controls as one of the factors under consideration in a five factor BART analysis. Since almost all states have completed their BART analyses and have either approved SIPs or FIPs in place, there is a large set of available data on modeled visibility impacts and benefits for comparison with, and this data illuminates how those model results were utilized to screen out sources and as part of the five-factor analysis in making BART control determinations.

The regulatory status of CALPUFF was changed in the recent revisions to the Guideline on Air Quality Models (GAQM) as far as the classification of CALPUFF as a preferred model for transport of pollutants for primary impacts, not impacts based on chemistry. The recent GAQM changes do not alter the original status of CALPUFF as discussed and approved for use in the 2005 BART guidelines. The GAQM changes indicated that the change in model preferred status had no impact on the use of CALPUFF for BART.<sup>92</sup>

*Comment:* We received comments stating that we used out-of-date and unrealistic emissions for some units, which artificially inflate the actual visibility impacts. The commenters state that the data used is unrealistic due to the 2000–2004 time period selected and also due to reporting errors to CAMD. Had more recent emissions been utilized in the screening analysis, these units would have been determined to not be subject to BART by the various screening methods applied by EPA. Commenters also state that a common sense reading of the Clean Air Act, BART regulations, and BART Guidelines indicate that the “subject to BART” analysis should be based on the most recently available emission data, which EPA’s subject-to-BART analysis does not use. Furthermore, the BART Guidelines do not specifically mandate the use of the 2000–2004 emission rates. Although the BART Guidelines recommend that for the purpose of screening BART-eligible sources, “States use the 24-hour average actual

emission rate from the highest emitting day of the metrological period modeled,” the BART Guidelines do not state that the time period analyzed must be restricted to 2000–2004. In fact, in the context of analyzing cost effective control options, the BART Guidelines recommend the use of emissions that are a “*realistic depiction of anticipated annual emissions for the source.*”<sup>4</sup> And “[i]n the absence of enforceable limitations, you calculate baseline emissions based upon *continuation of past practice.*”<sup>5</sup> EPA must also use realistic emissions when determining whether a unit causes or contributes to visibility impairment for BART. The use of 15-year old NO<sub>x</sub> and SO<sub>2</sub> data for purposes of evaluating this threshold question is illogical and arbitrary and capricious.

We also received comments that doubling the annual emissions of PM was conservative and we should have potentially used maximum heat input to estimate PM emission rates for subject to BART modeling. We also received comments that the values we modeled based on CEM data may have included emission rates during upset conditions, thus the emission rates used may be larger than normal operations.

*Response:* We note that, as discussed elsewhere, we are not making a subject-to-BART determination for those sources covered by the SO<sub>2</sub> trading program. In our final rule, the relevant BART requirement for these participating units will be encompassed by BART alternatives for NO<sub>x</sub> and SO<sub>2</sub> such that we do not deem it necessary to finalize subject-to-BART findings for these EGUs. In addition, we are approving the determination in the 2009 TX RH SIP that none of these sources are subject to BART for PM. Therefore, comments concerning the emissions utilized in our subject to BART modeling for the sources participating in the SO<sub>2</sub> trading program are no longer relevant. For those BART-eligible EGUs that are not covered by the BART alternative for SO<sub>2</sub>, we are finalizing determinations that those EGUs are not subject-to-BART for NO<sub>x</sub>, SO<sub>2</sub> and PM as proposed, based on the methodologies utilizing model plants and CALPUFF modeling as described in our proposed rule and BART Screening TSD.

We disagree with the commenter and believe using emissions from the 2000–2004 period is appropriate for determining if a source is subject to BART. Our analysis for facilities followed the BART Guidelines and was consistent with the BART analyses done for all BART-eligible sources. The BART Guidelines recommend that for the

<sup>90</sup> 70 FR 39104, 39123–24 (July 6, 2005). “We understand the concerns of commenters that the chemistry modules of the CALPUFF model are less advanced than some of the more recent atmospheric chemistry simulations. To date, no other modeling applications with updated chemistry have been approved by EPA to estimate single source pollutant concentrations from long range transport,” and in discussion of using other models with more advanced chemistry, “A discussion of the use of alternative models is given in the Guideline on Air Quality in appendix W, section 3.2.”

<sup>91</sup> For example, see Comparison of Single-Source Air Quality Assessment Techniques for Ozone, PM<sub>2.5</sub>, other Criteria Pollutants and AQRVs, ENVIRON, September 2012; and Anderson, B., K. Baker, R. Morris, C. Emery, A. Hawkins, E. Snyder “Proof-of-Concept Evaluation of Use of Photochemical Grid Model Source Apportionment Techniques for Prevention of Significant Deterioration of Air Quality Analysis Requirements” Presentation for Community Modeling and Analysis System (CMAS) 2010. Annual Conference, (October 11–15, 2010) can be found at <http://www.cmascenter.org/conference/2010/agenda.cfm>.

<sup>92</sup> 82 FR 5182, 5196 (Jan. 17, 2017). “As detailed in the preamble of the proposed rule, it is important to note that the EPA’s final action to remove CALPUFF as a preferred appendix A model in this Guideline does not affect its use under the FLM’s guidance regarding AQRV assessments (FLAG 2010) nor any previous use of this model as part of regulatory modeling applications required under the CAA. Similarly, this final action does not affect the EPA’s recommendation [See 70 FR 39104, 39122–23 (July 6, 2005)] that states use CALPUFF to determine the applicability and level of best available retrofit technology in regional haze implementation plans.”



purpose of screening BART-eligible sources, “States use the 24-hour average actual emission rate from the highest emitting day of the meteorological period modeled” unless this rate reflects periods start-up, shutdown, or malfunction. The emissions estimates used in the models are intended to reflect steady-state operating conditions during periods of high capacity utilization. Consistent with this guidance, we utilized the 24-hr maximum emission rate from the 2000–2004 baseline period and modeled using 2001–2003 meteorological data. We based our analysis on the CEM data from the baseline period 2000–2004 and removed what looked like questionably high values that did not occur often as they were potentially upset values. As discussed elsewhere we did review sources to determine if they installed controls during the baseline period and when that occurred we only looked at baseline emission data post controls. We received general comments that the values we used from CEM data might include upset values, but did not receive comments that indicated the values used were specifically upset values during the baseline period and should not be used. Facilities did not give us specific information to justify that the emission rates we used were not representative maximum 24-hour emission rates during the 2000–2004 period, so EPA considers the emission rates used were acceptable for the BART screening process.

We are not aware of any newly installed controls or limitations on emissions that have been put in place between the 2000–2004 baseline period and now for any of the BART-eligible sources not participating in the SO<sub>2</sub> trading program that would affect the potential visibility impact from the source. Furthermore, because all these sources were shown to have visibility impacts less than the 0.5 dv threshold using the maximum 24-hr actual emissions during the 2000–2004, modeling of lower emissions due to any new controls or emissions limits would also result in the same determination. We were also not provided any specific information where additional emission reductions/controls had been installed and resulted in a short-term (24-hour) maximum emission rate significantly less than modeled at any of these units.

The overall concern of the commenters was that the emissions used in the modeling resulted in some facilities being subject to a full BART analysis, but, as discussed elsewhere, we are not finalizing subject to BART determinations for the sources participating in the SO<sub>2</sub> trading

program. For the sources not participating in the trading program, they have been screened out with our baseline emissions modeling, so underlying concerns about emissions being high/non-representative would not result in any differences to the sources being screened out from a full BART analysis.

*Comment:* We received comments that stated that the proposed PM BART demonstration by Texas only considered PM emissions because SO<sub>2</sub> and NO<sub>x</sub> emissions were to be controlled through an alternative BART program, CAIR. Following the same type of approach, EPA in this Proposed Rule finds that CSAPR for ozone season NO<sub>x</sub> is better than BART. However, for the screen modeling used in the development of this Proposed Rule, instead of setting the NO<sub>x</sub> emission rate consistent with CSAPR, EPA uses the maximum 24-hour NO<sub>x</sub> emission rates from the 2000–2004 time period. EPA ignores the continued application of CSAPR ozone season budgets that apply to EGUs in Texas. This methodology is inconsistent with past practices and overestimates cumulative conditions and facility impacts. Commenters also state that because NO<sub>x</sub> is to be controlled by CSAPR, NO<sub>x</sub> related haze impacts should not be considered in the screening analysis.

*Response:* As discussed in our response to another comment, the emission rates used in the modeling should reflect maximum 24-hour emission rates from the baseline period. CSAPR for ozone season NO<sub>x</sub> is a seasonal NO<sub>x</sub> budget but does not effectively limit short-term emission rates such that a newer maximum 24-hour emission rate can be determined. Therefore, even if it were appropriate to consider any potential reductions due to CSAPR, it is not possible to accurately model any reductions/limits due to CSAPR on a short term basis. Furthermore, emissions from a unit can vary greatly over time as the CSAPR program allows sources to meet emission budgets in a given year by using banked allowances from previous years or by purchasing allowances from other sources within or outside of the State allowing emissions from the source to exceed their annual allocation level. We also note that we were not provided specific short-term emission rate limits from commenters that were based on the installation of new controls or other reductions that were permanent reductions to short-term emission rates. Our proposal did assess if emission controls were installed during the base period and we utilized the maximum short-term emission rate from the base

period after the controls were installed where applicable. Regardless of this issue, the underlying concern of the commenters was whether their facility screened out of being subject to a full BART analysis. With CSAPR coverage for NO<sub>x</sub> and the SO<sub>2</sub> intrastate trading program coverage for BART for all BART-eligible coal-fired EGUs, and several BART-eligible gas-fired and gas/fuel oil-fired EGUs, all the BART eligible units screen out of a full BART analysis for the pollutants not covered by trading programs, thus the chief concern that the modeling based on 2000–2004 maximum emissions and the inclusion of NO<sub>x</sub> contributed to a determination that the source was subject-to-BART, is no longer relevant.

Concerning the inclusion of NO<sub>x</sub> emissions in the screening analysis, EPA’s position is that the modeling must include both pollutants (NO<sub>x</sub> and SO<sub>2</sub>) since they both compete for ammonia. If we modeled only SO<sub>2</sub>, all of it would convert to ammonia sulfate (based on ammonia availability) and both baseline screening impacts for SO<sub>2</sub> and visibility benefits from any control assessments would also be overestimated. The chemical interaction between pollutants and background species can lead to situations where the reduction of emissions of a pollutant can actually lead to an increase or inaccurate assessment of the visibility impairment, if both NO<sub>x</sub> and SO<sub>2</sub> are not included in CALPUFF modeling. Therefore, to fully assess the visibility benefit anticipated from the use of controls, all pollutants should be modeled together.

BART screening modeling would also include the PM emissions. BART screening is meant to be a conservative and inclusive test. We have always considered combined NO<sub>x</sub>, SO<sub>2</sub>, and PM impacts even if the facility had NO<sub>x</sub> coverage or stringent NO<sub>x</sub> controls already installed. The BART guidelines state “You must look at SO<sub>2</sub>, NO<sub>x</sub>, and direct particulate matter (PM) emissions in determining whether sources cause or contribute to visibility impairment” unless emissions of these pollutants from the source are less than de minimis.<sup>93</sup> The BART Guidelines then provide three modeling options to determine which sources and pollutants need to be subject to BART:<sup>94</sup> (1) Dispersion modeling to “determine an individual source’s impact on visibility as a result of its emissions of SO<sub>2</sub>, NO<sub>x</sub> and direct PM emissions”; (2) model plants to exempt individual sources with common characteristics as

<sup>93</sup> 40 CFR part 51 Appendix Y, Section III.A.2.

<sup>94</sup> 40 CFR part 51 Appendix Y, Section III.A.3.



described in our BART Screening TSD; and (3) cumulative modeling on a pollutant by pollutant basis or for all visibility-impairing pollutants to show that no source in the State is subject to BART. The BART guidelines are clear that individual source modeling should evaluate impacts from NO<sub>x</sub>, SO<sub>2</sub> and PM in determining if a source is subject to BART and the pollutant-specific analyses are directed as an option to screen out the impacts of all BART sources in the State for a specific pollutant such as VOC or PM (in the case of EGUs covered by trading programs for NO<sub>x</sub> and SO<sub>2</sub>). The BART Guidelines also state that in assessing the visibility benefits of controls “modeling should be conducted for SO<sub>2</sub>, NO<sub>x</sub>, and direct PM emissions (PM<sub>2.5</sub> and/or PM<sub>10</sub>).”<sup>95</sup> In many cases a state may have only a handful of sources and impacts from more linear species (VOC or PM) may be so small that they make up a very small contribution (on the order of a 0–2% of the NO<sub>x</sub> and SO<sub>2</sub> impacts) to the visibility impacts at a Class I Area, therefore it may be acceptable to screen out pollutants that have a minimal impact. This is not the situation with NO<sub>x</sub>, SO<sub>2</sub> and PM emissions from EGUs in Texas where some EGUs’ PM modeled impacts were greater than 0.25 del-dv. EPA’s 2006 memorandum on this is clear that you have to model both (NO<sub>x</sub> and SO<sub>2</sub>) because of technical and policy concerns, and also reiterated that pollutant specific analysis was for the limited situation of addressing PM when a large group of sources had BART coverage for the non-linear reacting pollutants (NO<sub>x</sub> and SO<sub>2</sub>) through a BART alternative.<sup>96</sup> The BART Guidelines specifically indicate that NO<sub>x</sub>, SO<sub>2</sub> and PM should be modeled together when modeling BART eligible units at one facility.<sup>97</sup> This is similar to the BART eligibility test contemplated in the BART guidelines where if the emissions from the identified units at source exceed a potential to emit of 250 tons per year for any single visibility-impairing pollutant, the source is considered BART-eligible and may be subject to a BART review for all visibility impairing pollutants.<sup>98</sup>

As previously discussed the commenter’s primary concern with

regard to the inclusion of NO<sub>x</sub> was that this may have contributed to facilities not screening out from a full BART analysis. Because, in the final rule, trading programs constitute BART alternatives for NO<sub>x</sub> and SO<sub>2</sub>, the facilities that were proposed as subject to BART now screen out for the pollutants not covered by a trading program.

*Comment:* We received a comment from TCEQ that EPA should screen out the Newman facility based on CALPUFF modeling or use CAMx to appropriately screen Newman and determine its visibility impacts. We also received comments from the owner of Newman, EPEC, stating that the PM and SO<sub>2</sub> BART limits for those gas-fired units that occasionally burn fuel oil, applicable to Newman 2 and 3, of a fuel oil sulfur content of 0.7% is acceptable, and that Newman 4 is restricted to burn only natural gas. EPEC has maintained on-site diesel fuel oil with a lesser sulfur content as emergency backup fuel for testing for preparedness purposes, and in the unlikely scenario of a natural gas curtailment event or other situation that may compromise the steady flow of the primary pipeline quality natural gas fuel supply. EPEC also notes that these units are only permitted to operate 876 hours per year.

*Response:* Based upon the comments we received requesting a BART alternative in lieu of source-specific EGU BART determinations, we are finalizing a SO<sub>2</sub> trading program as an alternative to source-by-source BART. We are not finalizing subject-to-BART determinations for BART eligible sources covered by the BART alternative for SO<sub>2</sub> and NO<sub>x</sub>. In our final rule, the relevant BART requirement for these participating units, including the BART-eligible Newman units, will be satisfied by BART alternatives for NO<sub>x</sub> and SO<sub>2</sub> such that we do not deem it necessary to finalize subject-to-BART findings for these EGUs. In addition, we are approving a determination that none of these sources are subject to BART for PM. Therefore, we do not find it necessary to respond to the merits of comments concerning screening modeling for this source, because the outcome of that modeling is not dispositive to the source’s inclusion in the BART alternative or its allowance thereunder. See discussion above for assessment of previous CAMx PM screening (Texas 2009 RH SIP) where the Newman source was included in Group 2 with a number of other sources and screened out from being subject to BART for PM.

*Comment:* We received comments that some of the stack parameters were

incorrect at facilities in our CALPUFF and CAMx modeling. New stack height, diameter, velocity values were given for some units.

*Response:* We reviewed the information provided and note that some facilities gave contradicting data within their comments. For those facilities for which we are relying on modeling to determine they are not subject to BART, we have evaluated potential changes where we may have had an inaccurate number in our proposal modeling. We have determined that the impacts from changes to stack parameters would be minimal and not change our current assessment and decisions.

## 2. Modeling Related to Whether Coal-Fired Sources Are Subject to BART

*Comment:* We received comments on the CALPUFF and CAMx modeling utilized to determine which coal-fired EGUs are subject to BART. These included comments concerning emissions inputs, the metrics used, the post-processing methodology, and the model performance.

*Response:* Due to the comments we received requesting a BART alternative in lieu of source-specific EGU BART determinations, we are finalizing a SO<sub>2</sub> trading program as an alternative to source-by-source BART. This trading program includes participation of all BART-eligible coal-fired EGUs such that we do not deem it necessary to finalize subject-to-BART findings for these EGUs except for PM emissions. As a consequence, we believe that it is not necessary to respond to the merits of comments concerning modeled baseline visibility impacts using CALPUFF or CAMx and determination of which coal-fired sources are subject to BART. In this final action we are approving the determination in the Texas RH SIP that all EGU sources screen out of BART for PM. We are also finalizing the determination that all BART-eligible EGUs not participating in the trading program screen out of BART for NO<sub>x</sub>, SO<sub>2</sub> and PM based on upon CALPUFF modeling (direct source and Model Plant). We address all comments pertinent to the use of CALPUFF (direct source and Model Plant) for BART screening for these sources in other responses to comments. We note that the comments expressing concerns about CALPUFF modeling were associated with facilities that did not screen out from a full subject to BART analysis. Since we have determined that no EGU sources are now subject to BART and a source-specific BART control analysis for pollutants not covered by a BART alternative, the

<sup>95</sup> 40 CFR part 51 Appendix Y, Section IV.D.5 (emphasis added).

<sup>96</sup> EPA Memorandum from Joseph W. Paisie OAQPS to Kay Prince EPA Region 4, “Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations”, July 19, 2006.

<sup>97</sup> 40 CFR part 51 Appendix Y, Section III.A.3.

<sup>98</sup> See first example in 40 CFR part 51 Appendix Y, Section II.A.4.

specific concerns raised by commenters about being determined to be subject to a BART control analysis because of emissions inputs used, metrics used, etc. are not relevant to this final action. See the Modeling RTC document for the entirety of the modeling comments and our responses.

*Comment:* The 0.5 dv threshold used by EPA in its proposed determinations based on CAMx modeling of what sources are subject to BART is too low, given the uncertainties in the CAMx modeling methods used to quantify the visibility impacts of sources.

*Response:* In our proposed action, we utilized CAMx modeling to evaluate visibility impacts from BART-eligible sources that include BART eligible coal-fired EGUs. Due to the comments we received requesting a BART alternative in lieu of source-specific EGU BART determinations, we are finalizing a SO<sub>2</sub> trading program as an alternative to source-by-source BART. This trading program includes participation of all BART-eligible coal-fired EGUs such that we do not deem it necessary to finalize subject-to-BART findings for these sources except for PM emissions.

In this final action the only CAMx modeling we are relying upon is CAMx modeling performed for TCEQ in screening of EGU emissions of PM that was included in TCEQ's 2009 SIP. Our approval of the CAMx PM screening of EGUs is based on the original CENRAP modeling datasets, agreed modeling protocols and Texas' use of the 0.5 del-dv to screen sources as agreed upon by TCEQ in 2007. Any potential concerns with CAMx bias were considered in 2007 and TCEQ, EPA and FLM representatives agreed to the approach of using 0.5 del-dv to screen groups of sources using CAMx modeling. We note that the BART guidelines specifically state that "as a general matter, any threshold that you use for determining whether a source "contributes" to visibility impairment should not be higher than 0.5 deciviews."<sup>99</sup> Furthermore, our action on the PM BART determinations in the 2009 Texas SIP submittal would not be any different had we used a higher threshold since all sources screened out based on the use of the 0.5 dv threshold. Since we are not relying on the CAMx modeling we had performed for our proposal, any comments concerning the use of this modeling are not pertinent to this final action and it is not necessary to respond to the merits of those comments.

### 3. Modeling Related to Visibility Benefit of Sources Subject-to-BART

*Comment:* We received comments on the CALPUFF and CAMx modeling utilized to estimate the visibility benefits of controls. These included comments concerning the emissions inputs, the metrics used, the post-processing methodology, and the model performance.

*Response:* Based on the comments we received requesting a BART alternative in lieu of source-specific EGU BART determinations, we are finalizing a SO<sub>2</sub> trading program as an alternative to source-by-source BART. This trading program includes participation of all BART-eligible coal-fired EGUs and a number of BART-eligible gas or gas/fuel oil-fired EGUs. It also includes a number of non-BART eligible EGUs. The combination of the source coverage for this program, the total allocations for EGUs covered by the program, and recent and foreseeable emissions from EGUs not covered by the program will result in future EGU emissions in Texas that are similar to the SO<sub>2</sub> emission levels forecast in the 2012 better-than-BART demonstration for Texas EGU emissions assuming CSAPR participation. We are not finalizing our evaluation of whether individual sources are subject to BART. As a consequence, we believe that it is not necessary to respond to the merits of comments concerning source-specific visibility benefits of controls on these units, because we are not finalizing requirements based on those controls.

#### I. Comments on Affordability and Grid Reliability

*Comment:* We received comments from the State, EGU owners covered under our proposal and environmental groups concerning whether our proposal would cause EGUs to retire and thus cause grid reliability issues. These comments included both criticisms of and support for our proposed position. Texas, in particular, stated that recent ERCOT studies have raised concerns that several units in Texas will no longer be economically viable if required to install capital intensive controls. They also indicated that EPA's IPM modeling supports this conclusion. Texas believed that if units shutdown with little notice it could cause reliability concerns.

*Response:* EPA takes very seriously concerns about grid reliability. We are finalizing a SO<sub>2</sub> trading program as an alternative to source-by-source BART. We believe the program we have designed will help address reliability concerns because it does not require

installation of capital intensive controls and will provide much more flexibility to sources than the source by source compliance we proposed. In fact, aggregate emissions of the covered sources in 2016 were below the level called for by the trading program. In addition, the supplemental allowance pool is expected to provide additional flexibility to allow sources to run, if necessary, in an emergency. We believe that it is not necessary to respond on the merits to specific comments concerning the impacts to grid reliability related to the requirements of the proposed source-specific controls, because we are not finalizing those requirements.

### V. SO<sub>2</sub> Trading Program and Its Implications for Interstate Visibility Transport, EGU BART, and Reasonable Progress

The Regional Haze Rule provides each state with the flexibility to adopt an allowance trading program or other alternative measure instead of requiring source-specific BART controls, so long as the alternative measure is demonstrated to achieve greater reasonable progress than BART. As discussed in Section III.A.3 above, based principally on comments submitted by the State of Texas during the comment period urging us to consider as a BART alternative the concept of system-wide emission caps using CSAPR allocations as part of an intrastate trading program,<sup>100</sup> we are acknowledging the State's preference and exercising our authority to promulgate a BART alternative for SO<sub>2</sub> for certain Texas EGUs. The combination of the source coverage for this program, the total allocations for EGUs covered by the program, and recent and foreseeable emissions from EGUs not covered by the program will result in future EGU emissions in Texas that are similar to what was forecast in the 2012 better than BART demonstration for Texas EGU emissions assuming CSAPR participation.

#### A. Background on the CSAPR as an Alternative to BART Concept

In 2012, the EPA amended the Regional Haze Rule to provide that participation by a state's EGUs in a CSAPR trading program for a given pollutant—qualifies as a BART alternative for those EGUs for that pollutant.<sup>101</sup> In promulgating this

<sup>100</sup> See Docket Item No. EPA-R06-OAR-2016-0611-0070, p. 3.

<sup>101</sup> 40 CFR 51.308(e)(4); see also generally 77 FR 33641 (June 7, 2012). Legal challenges to the CSAPR-better-than-BART rule from conservation groups and other petitioners are pending. *Utility Air*

<sup>99</sup> 40 CFR part 51 Appendix Y, Section III.A.1.



CSAPR-better-than-BART rule (also referred to as “Transport Rule as a BART Alternative”), the EPA relied on an analytic demonstration based on an air quality modeling study<sup>102</sup> showing that CSAPR implementation meets the Regional Haze Rule’s criteria for a demonstration of greater reasonable progress than BART. In the air quality modeling study conducted for the 2012 analytic demonstration, the EPA projected visibility conditions in affected Class I areas<sup>103</sup> based on 2014 emissions projections for two control scenarios and on the 2014 base case emissions projections.<sup>104</sup> One control scenario represents “Nationwide BART” and the other represents “CSAPR + BART-elsewhere.” In the base case, neither BART controls nor the EGU SO<sub>2</sub> and NO<sub>x</sub> emissions reductions attributable to CSAPR were reflected. To project emissions under CSAPR, the EPA assumed that the geographic scope and state emissions budgets for CSAPR would be implemented as finalized and amended in 2011 and 2012.<sup>105</sup> The results of that analytic demonstration based on this air quality modeling passed the two-pronged test set forth at 40 CFR 51.308(e)(3). The first prong ensures that the alternative program will not cause a decline in visibility at any affected Class I area. The second prong ensures that the alternative program results in improvements in average visibility across all affected Class I areas as compared to adopting source-specific BART. Together, these tests ensure that the alternative program provides for greater visibility improvement than would source-specific BART.

For purposes of the 2012 analytic demonstration that CSAPR as finalized and amended in 2011 and 2012

provides for greater reasonable progress than BART, the analysis included Texas EGUs as subject to CSAPR for SO<sub>2</sub> and annual NO<sub>x</sub> (as well as ozone-season NO<sub>x</sub>). CSAPR’s emissions limitations are defined in terms of emissions “budgets” for the collective emissions from affected EGUs in each covered state. Sources have the ability to purchase allowances from sources outside of the state, so total projected emissions for a state may, in some cases, exceed the state’s emission budget, but aggregate emissions from all sources in a state should remain lower than or equal to the state’s “assurance level.” The final emission budget under CSAPR for Texas was 294,471 tons per year for SO<sub>2</sub>, including 14,430 tons of allowances available in the new unit set aside.<sup>106</sup> The State’s “assurance level” under CSAPR was 347,476 tons.<sup>107</sup> Under CSAPR, the projected SO<sub>2</sub> emissions from the affected Texas EGUs in the CSAPR + BART-elsewhere scenario were 266,600 tons per year. In a 2012 sensitivity analysis memo, EPA conducted a sensitivity analysis that confirmed that CSAPR would remain better-than-BART if Texas EGU emissions increased to approximately 317,100 tons.<sup>108</sup>

As introduced in Section I.C, in the EPA’s final response to the D.C.

Circuit’s remand of certain CSAPR budgets, we finalized the withdrawal of the requirements for Texas’ EGUs to participate in the annual SO<sub>2</sub> and NO<sub>x</sub> trading programs and also finalized our determination that the changes to the geographic scope of the CSAPR trading programs resulting from the remand response do not affect the continued validity of participation in CSAPR as a BART alternative. This determination that CSAPR remains a viable BART alternative despite changes in geographic scope resulting from EPA’s response to the CSAPR remand was based on a sensitivity analysis of the 2012 analytic demonstration used to support the original CSAPR as better-than-BART rulemaking. A full explanation of the sensitivity analysis is included in the remand response proposal and final rule.<sup>109</sup>

#### B. Texas SO<sub>2</sub> Trading Program

Texas is no longer in the CSAPR program for annual SO<sub>2</sub> emissions and accordingly cannot rely on CSAPR as a BART alternative for SO<sub>2</sub> under 51.308(e)(4).<sup>110</sup> Therefore, informed by the TCEQ comments, we are proceeding to address the SO<sub>2</sub> BART requirement for coal-fired, some gas-fired, and some gas/fuel oil-fired units under a BART alternative, which we are justifying according to the demonstration requirements under 51.308(e)(2).

##### 1. Identification of Sources Participating in the Trading Program

Under 51.308(e)(2), a State may opt to implement or require participation in an emissions trading program or other alternative measure rather than to require sources subject to BART to install, operate, and maintain BART. Such an emissions trading program or other alternative measure must achieve greater reasonable progress than would be achieved through the installation and operation of BART. At the same time, the Texas trading program should be designed so as not to interfere with the validity of existing SIPs in other states that have relied on reductions from sources in Texas. As discussed elsewhere, the Texas trading program is designed to provide the measures that are needed to address interstate visibility transport requirements for several NAAQS and to be part of the long-term strategy needed to meet the reasonable progress requirements of the

*Regulatory Group v. EPA*, No. 12–1342 (D.C. Cir. filed August 6, 2012).

<sup>102</sup> See Technical Support Document for Demonstration of the Transport Rule as a BART Alternative, Docket ID No. EPA–HQ–OAR–2011–0729–0014 (December 2011) (2011 CSAPR/BART Technical Support Document), and memo entitled “Sensitivity Analysis Accounting for Increases in Texas and Georgia Transport Rule State Emissions Budgets,” Docket ID No. EPA–HQ–OAR–2011–0729–0323 (May 29, 2012), both available in the docket for this action.

<sup>103</sup> The EPA identified two possible sets of “affected Class I areas” to consider for purposes of the study and found that implementation of CSAPR met the criteria for a BART alternative whichever set was considered. See 77 FR 33641, 33650 (June 7, 2012).

<sup>104</sup> For additional detail on the 2014 base case, see the CSAPR Final Rule Technical Support Document, available in the docket for this action.

<sup>105</sup> CSAPR was amended three times in 2011 and 2012 to add five states to the seasonal NO<sub>x</sub> program and to increase certain state budgets. 76 FR 80760 (Dec. 27, 2011); 77 FR 10324 (Feb. 21, 2012); 77 FR 34830 (June 12, 2012). The CSAPR-better-than-BART final rule reflected consideration of these changes to CSAPR.

<sup>106</sup> Units that are subject to CSAPR but that do not receive allowance allocations as existing units are eligible for a new unit set aside (NUSA) allowance allocation. NUSA allowance allocations are a batch of emissions allowances that are reserved for new units that are regulated by the CSAPR, but weren’t included in the final rule allocations. The NUSA allowance allocations are removed from the original pool of regional allowances, and divided up amongst the new units, so as not to exceed the emissions cap set in the CSAPR. Each calendar year, EPA issues three pairs of preliminary and final notices of data availability (NODAs), which are determined and recorded in two “rounds” and are published in the **Federal Register**. In any year, if the NUSA for a given CSAPR state and program does not have enough new units after completion of the 2nd round, the remaining allowances are allocated to existing CSAPR-affected units.

<sup>107</sup> See 40 CFR 97.710 for state SO<sub>2</sub> Group 2 trading budgets, new unit set-asides, Indian country new unit set-asides, and variability limits.

<sup>108</sup> For the projected annual SO<sub>2</sub> emissions from Texas EGUs See Technical Support Document for Demonstration of the Transport Rule as a BART Alternative, Docket ID No. EPA–HQ–OAR–2011–0729–0014 (December 2011) (2011 CSAPR/BART Technical Support Document), available in the docket for this action. at table 2–4. Certain CSAPR budgets were increased after promulgation of the CSAPR final rule (and the increases were addressed in the 2012 CSAPR/BART sensitivity analysis memo. See memo entitled “Sensitivity Analysis Accounting for Increases in Texas and Georgia Transport Rule State Emissions Budgets,” Docket ID No. EPA–HQ–OAR–2011–0729–0323 (May 29, 2012), available in the docket for this action. The increase in the Texas SO<sub>2</sub> budget was 50,517 tons which, when added to the Texas SO<sub>2</sub> emissions projected in the CSAPR + BART-elsewhere scenario of 266,600 tons, yields total potential SO<sub>2</sub> emissions from Texas EGUs of approximately 317,100 tons.

<sup>109</sup> 81 FR 78954 (Nov. 10, 2016) and final action signed September 21, 2017 available at [regulations.gov](http://regulations.gov) in Docket No. EPA–HQ–OAR–2016–0598.

<sup>110</sup> See final action signed September 21, 2017 available at [regulations.gov](http://regulations.gov) in Docket No. EPA–HQ–OAR–2016–0598.

Regional Haze Rule.<sup>111</sup> To meet all of these goals, the trading program must not only be inclusive of all BART-eligible sources that are treated as satisfying the BART requirements through participation in a BART alternative, but must also include additional emission sources such that the trading program as a whole can be shown to both achieve greater reasonable progress than would be achieved through the installation and operation of BART, and achieve the emission reductions relied upon by other states during consultation and assumed by other states in their own regional haze SIPs, including their reasonable progress goals for their Class I areas.

The identification of EGUs in the trading program necessarily begins with the list of BART-eligible EGUs for which we intend to address the BART requirements through a BART alternative. As discussed elsewhere, we determined that several BART-eligible gas-fired and gas/oil-fired EGUs are not subject-to-BART for NO<sub>x</sub>, SO<sub>2</sub>, and PM, therefore those BART-eligible sources are not included in the trading program. The table below lists those BART-eligible EGUs identified for participation in the trading program.

**TABLE 4—BART-ELIGIBLE EGUS PARTICIPATING IN THE TRADING PROGRAM**

Facility	Unit
Big Brown (Luminant) .....	1.
Big Brown (Luminant) .....	2.
Coletto Creek (Dynegy <sup>112</sup> ) .....	1.
Fayette (LCRA) .....	1.
Fayette (LCRA) .....	2.
Graham (Luminant) .....	2.
Harrington Station (Xcel) .....	061B.
Harrington Station (Xcel) .....	062B.
J T Deely (CPS Energy) .....	1.
J T Deely (CPS Energy) .....	2.
Martin Lake (Luminant) .....	1.
Martin Lake (Luminant) .....	2.
Martin Lake (Luminant) .....	3.
Monticello (Luminant) .....	1.
Monticello (Luminant) .....	2.
Monticello (Luminant) .....	3.
Newman (El Paso Electric) .....	2.
Newman (El Paso Electric) .....	3.
Newman (El Paso Electric) .....	4.
O W Sommers (CPS Energy) .....	1.
O W Sommers (CPS Energy) .....	2.

<sup>111</sup> EPA is not determining at this time that this final action fully resolves the EPA's outstanding obligations with respect to reasonable progress that resulted from the Fifth Circuit's remand of our reasonable progress FIP. We intend to take future action to address the Fifth Circuit's remand.

<sup>112</sup> Dynegy purchased the Coletto Creek power plant from Engie in February, 2017. Note that Coletto Creek may still be listed as being owned by Engie in some of our supporting documentation which was prepared before that sale.

**TABLE 4—BART-ELIGIBLE EGUS PARTICIPATING IN THE TRADING PROGRAM—Continued**

Facility	Unit
Stryker Creek (Luminant) .....	ST2.
WA Parish (NRG) .....	WAP4.
WA Parish (NRG) .....	WAP5.
WA Parish (NRG) .....	WAP6.
Welsh Power Plant (AEP) .....	1.
Welsh Power Plant (AEP) .....	2.
Wilkes Power Plant (AEP) .....	1.
Wilkes Power Plant (AEP) .....	2.
Wilkes Power Plant (AEP) .....	3.

For a BART alternative that includes an emissions trading program, the applicability provisions must be designed to prevent any significant potential shifting within the state of production and emissions from sources in the program to sources outside the program. Shifting would be logistically simplest among units in the same facility, because they are under common management and have access to the same transmission lines. In addition, since a coal-fired EGU to which electricity production could shift would have a relatively high SO<sub>2</sub> emission rate (compared to a gas-fired EGU), such shifting could also shift substantive amounts of SO<sub>2</sub> emissions. To prevent any significant shifting of generation and SO<sub>2</sub> emissions from participating sources to non-participating sources within the same facility, coal-fired EGUs that are not BART-eligible but are co-located with BART-eligible EGUs have been included in the program. While Fayette Unit 3, WA Parish Unit 8 (WAP8), and J K Spruce Units 1 and 2 were identified as coal-fired units that are not BART-eligible but are co-located with BART-eligible EGUs, these units have scrubbers installed to control SO<sub>2</sub> emissions such that a shift in generation from the participating units to these units would not result in a significant increase in emissions. Fayette Unit 3 has a high performing scrubber similar to the scrubbers on Fayette Units 1 and 2,<sup>113</sup> and has a demonstrated ability to maintain SO<sub>2</sub> emissions at or below 0.04 lbs/MMBtu.<sup>114</sup> We find that any shifting of generation from the participating units at the facility to Fayette Unit 3 would result in an insignificant shift of emissions. The scrubber at Parish Unit 8 maintains an emission rate four to five times lower than the emission rate of the other coal-fired units at the facility

<sup>113</sup> See the BART FIP TSD, available in the docket for this action (Document Id: EPA-R06-OAR-2016-0611-0004), for evaluation of the performance of scrubbers on Fayette Units 1 and 2.

<sup>114</sup> The annual average emission rate for 2016 for this unit was 0.01 lb/MMBtu.

(Parish Units 5, 6, and 7) that are uncontrolled.<sup>115</sup> Shifting of generation from the participating units at the Parish facility to Parish Unit 8 would result in a decrease in overall emissions from the source. Similarly, J K Spruce Units 1 and 2 have high performing scrubbers and emit at emission rates much lower than the co-located BART-eligible coal-fired units (J T Deely Units 1 and 2).<sup>116</sup> In addition, because these units not covered by the program are on average better controlled for SO<sub>2</sub> than the covered sources and emit far less SO<sub>2</sub> per unit of energy produced, we conclude that in general, based on the current emission rates of the EGUs, should a portion of electricity generation shift to those units not covered by the program, the net result would be a decrease in overall SO<sub>2</sub> emissions, as these non-participating units are on average much better controlled. Relative to current emission levels, should participating units increase their emissions rates and decrease generation to comply with their allocation, emissions from non-participating units may see a small increase. Therefore, we have not included Fayette Unit 3, WA Parish Unit 8 (WAP8), and J K Spruce Units 1 and 2 in the trading program. The table below lists those coal-fired units that are co-located with BART-eligible units that have been identified for inclusion in the trading program.

**TABLE 5—COAL-FIRED EGUS CO-LOCATED WITH BART-ELIGIBLE EGUS AND PARTICIPATING IN THE TRADING PROGRAM**

Facility	Unit
Harrington Station (Xcel) .....	063B.
WA Parish (NRG) .....	WAP7.
Welsh Power Plant (AEP) .....	3.

In addition to these sources, we also evaluated other EGUs for inclusion in the trading program based on their potential to impact visibility at Class I areas. Addressing emissions from sources with the largest potential to impact visibility is required to make progress towards the goal of natural visibility conditions and to address emissions that may otherwise interfere

<sup>115</sup> Parish Units 5 and 6 are coal-fired BART-eligible units. Parish Unit 7 is not BART-eligible, but is a co-located coal-fired EGU. Unlike Parish Unit 8, these three units do not have an SO<sub>2</sub> scrubber installed.

<sup>116</sup> The annual average emission rate for 2016 for J K Spruce Units 1 and 2 was 0.03 lb/MMBtu and 0.01 lb/MMBtu, respectively. The annual average emission rate for 2016 for J T Deely Units 1 and 2 was 0.52 lb/MMBtu and 0.51 lb/MMBtu, respectively.



with measures required to protect visibility in other states. EPA, States, and RPOs have historically used a Q/D analysis to identify those facilities that have the potential to impact visibility at a Class I area based on their emissions and distance to the Class I area. Where,

1. Q is the annual emissions in tons per year (tpy), and

2. D is the nearest distance to a Class I Area in kilometers (km).

We used a Q/D value of 10 as a threshold for identification of facilities that may impact air visibility at Class I areas and could be included in the trading program in order to meet the goals of achieving greater reasonable progress than BART and limiting visibility transport. We selected this value of 10 based on guidance contained in the BART Guidelines, which states:

Based on our analyses, we believe that a State that has established 0.5 deciviews as a contribution threshold could reasonably exempt from the BART review process sources that emit less than 500 tpy of NO<sub>x</sub> or SO<sub>2</sub> (or combined NO<sub>x</sub> and SO<sub>2</sub>), as long as these sources are located more than 50 kilometers from any Class I area; and sources that emit less than 1000 tpy of NO<sub>x</sub> or SO<sub>2</sub> (or combined NO<sub>x</sub> and SO<sub>2</sub>) that are located more than 100 kilometers from any Class I area.<sup>117</sup>

The approach described above corresponds to a Q/D threshold of 10. This approach has also been recommended by the Federal Land Managers' Air Quality Related Values Work Group (FLAG)<sup>118</sup> as an initial screening test to determine if an analysis is required to evaluate the potential impact of a new or modified source on air quality related value (AQRV) at a Class I area. For this purpose, a Q/D value is calculated using the combined annual emissions in tons per year of (SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>, and sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) divided by the distance to the Class I area in km. A Q/D value greater than 10 requires a Class I area AQRV analysis.<sup>119</sup>

We considered the results of an available Q/D analysis based on 2009 emissions to identify facilities that may impact air visibility at Class I areas.<sup>120</sup>

The table below summarizes the results of that Q/D analysis for EGU sources in Texas with a Q/D value greater than 10 with respect to the nearest Class I area to the source.

TABLE 6—Q/D ANALYSIS FOR TEXAS EGUS

[Q/D greater than 10, 2009 annual emissions]

Facility	Maximum Q/D
H.W. Pirkey (AEP) .....	35.8
Big Brown (Luminant) .....	182.9
Sommers-Deely (CPS) .....	56.9
Coletto Creek (Dynergy) .....	46.0
Fayette (LCRA) .....	61.0
Gibbons Creek (TMPA) .....	30.8
Harrington Station (XCEL) ....	107.8
San Miguel .....	32.9
Limestone (NRG) .....	85.1
Martin Lake (Luminant) .....	367.4
Monticello (Luminant) .....	425.4
Oklahoma (AEP) .....	85.0
Sandow (Luminant) .....	63.0
Tolk Station (XCEL) .....	148.5
Twin Oaks .....	14.2
WA Parish (NRG) .....	84.3
Welsh (AEP) .....	230.1

Based on the above Q/D analysis, we identified additional coal-fired EGUs for participation in the SO<sub>2</sub> trading program due to their emissions, proximity to Class I areas, and potential to impact visibility at Class I areas. While Gibbons Creek is identified by the Q/D analysis, the facility does not include any BART-eligible EGUs and has installed very stringent controls such that current emissions are approximately 1% of what they were in 2009.<sup>121</sup> Therefore, we do not consider Gibbons Creek to have significant potential to impact visibility at any Class I area and do not include it in the trading program. The Twin Oaks facility, consisting of two units, is also identified as having a Q/D greater than 10. However, the Q/D for this facility is significantly lower than that of the other facilities, the facility does not include any BART-eligible EGUs, and the estimated Q/D for an individual unit would be less than 10. We do not consider the potential visibility impacts from these units to be significant relative to the other coal-fired EGUs in Texas with Q/Ds much greater than 10 and do not include it in the trading program. The Oklahoma facility consists of one coal-fired unit that is not BART-eligible. Annual emissions of SO<sub>2</sub> in 2016 from this source were 1,530 tons, less than 1% of the total annual emissions for EGUs in the state. We have determined that the

16, 2014) and 2009statesum\_Q\_D.xlsx available in the docket for that action.

<sup>121</sup> 2016 annual SO<sub>2</sub> emissions were only 138 tons compared to 11,931 tons in 2009.

most recent emissions from this facility are small relative to other non-BART units included in the program and we have not included Oklahoma in the trading program. Finally, San Miguel is identified as having a Q/D greater than 10. The San Miguel facility consists of one coal-fired unit that is not BART-eligible. In our review of existing controls at the facility performed as part of our action to address the remaining regional haze obligations for Texas, we found that the San Miguel facility has upgraded its SO<sub>2</sub> scrubber system to perform at the highest level (94% control efficiency) that can reasonably be expected based on the extremely high sulfur content of the coal being burned, and the technology currently available.<sup>122</sup> Since completion of all scrubber upgrades,<sup>123</sup> emissions from the facility on a 30-day boiler operating day<sup>124</sup> rolling average basis have remained below 0.6 lb/MMBtu and the 2016 annual average emission rate was 0.44 lb/MMBtu. Therefore, we have determined that the facility is well controlled and have not included San Miguel in the trading program. Other coal-fired EGUs in Texas that are not included in the trading program either had Q/D values less than 10 based on 2009 emissions or were not yet operating in 2009. New units beginning operation after 2009 would be permitted and constructed using emission control technology determined under either BACT or LAER review, as applicable and we do not consider the potential visibility impacts from these units to be significant relative to those coal-fired EGUs participating in the program. See Table 10 and accompanying discussion in the section below for additional information on coal-fired EGUs not included in the trading program. The table below lists the additional units identified by the Q/D analysis described above as potentially significantly impacting visibility and are included in the trading program. We note that all of the other coal-fired units identified for inclusion in the trading program due to their BART-eligibility or by the fact that they are co-located with BART-eligible coal units would also be identified for

<sup>122</sup> 79 FR 74818 (Dec. 16, 2014).

<sup>123</sup> San Miguel Electric Cooperative FGD Upgrade Program Update, URS Corporation, June 30, 2014. Available in the docket for our December 2014 Proposed action, 79 FR 74818 (Dec 16, 2014) as "TX166-008-066 San Miguel FGD Upgrade Program."

<sup>124</sup> A boiler operating day (BOD) is any 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time at the steam generating unit. See 70 FR 39172 (July 6, 2005).

<sup>117</sup> See 40 CFR part 51, App. Y, § III (How to Identify Sources "Subject to BART").

<sup>118</sup> Federal Land Managers' Air Quality Related Values Work Group (FLAG), Phase I Report—Revised (2010) Natural Resource Report NPS/NRPP/NRR—2010/232, October 2010. Available at [http://www.nature.nps.gov/air/Pubs/pdf/flag/FLAG\\_2010.pdf](http://www.nature.nps.gov/air/Pubs/pdf/flag/FLAG_2010.pdf).

<sup>119</sup> We also note that TCEQ utilized a Q/D threshold of 5 in its analysis of reasonable progress sources in the 2009 Texas Regional Haze SIP. See Appendix 10-1.

<sup>120</sup> See the TX RH FIP TSD that accompanied our December 2014 Proposed action 79 FR 74818 (Dec

inclusion in the trading program if the Q/D analysis were applied to them.

TABLE 7—ADDITIONAL UNITS IDENTIFIED FOR INCLUSION IN THE TRADING PROGRAM

Facility	Unit
H.W. Pirkey (AEP) .....	1.
Limestone (NRG) .....	1.
Limestone (NRG) .....	2.
Sandow (Luminant) .....	4.
Tolk (Xcel) .....	171B.
Tolk (Xcel) .....	172B.

As discussed in more detail below, the inclusion of all of these identified sources (Tables 4, 5, and 7 above) in an intrastate SO<sub>2</sub> trading program will achieve emission levels that are similar to original projected participation by all Texas EGUs in the CSAPR program for trading of SO<sub>2</sub> and achieve greater reasonable progress than BART. In addition to being a sufficient alternative to BART, the trading program secures reductions consistent with visibility transport requirements and is part of the long-term strategy to meet the reasonable progress requirements of the Regional Haze Rule.<sup>125</sup> The combination of the source coverage for this program, the total allocations for EGUs covered by the program, and recent and foreseeable emissions from EGUs not covered by the program will result in future EGU emissions in Texas that on average will be no greater than what was forecast in the 2012 better-than-BART demonstration for Texas EGU emissions assuming CSAPR participation.

2. Texas SO<sub>2</sub> Trading Program as a BART Alternative

40 CFR 51.308(e)(2) contains the required plan elements and analyses for an emissions trading program or alternative measure designed as a BART alternative.

As discussed above, consistent with our proposal, we are finalizing our list of all BART-eligible sources, in Texas, which serves to satisfy § 51.308(e)(2)(i)(A).

This action includes a list of all EGUs covered by the trading program, satisfying the first requirement of § 51.308(e)(2)(i)(B). All BART-eligible coal-fired units, some additional coal-fired EGUs, and some BART-eligible gas-fired and oil-and-gas-fired units are

covered by the alternative program.<sup>126</sup> This coverage and our determinations that the BART-eligible gas-fired and oil-and-gas-fired EGUs not covered by the program are not subject-to-BART for NO<sub>x</sub>, SO<sub>2</sub> and PM satisfy the second requirement of § 51.308(e)(2)(i)(B). Regarding the requirements of 40 CFR 51.308(e)(2)(i)(C), we are not making determinations of BART for each source subject to BART and covered by the program. The demonstration for a BART alternative does not need to include determinations of BART for each source subject to BART and covered by the program when the “alternative measure has been designed to meet a requirement other than BART.” The Texas trading program meets this condition, as discussed elsewhere, because it has been designed to meet multiple requirements other than BART. This BART alternative extends beyond all BART-eligible coal-fired units to include a number of additional coal-fired EGUs, and some BART-eligible gas-fired and oil-and-gas-fired units, capturing the majority of emissions from EGUs in the State and is designed to provide the measures that are needed to address interstate visibility transport requirements for several NAAQS. This is because for all sources covered by the Texas SO<sub>2</sub> trading program, those sources’ CSAPR allocations for SO<sub>2</sub> are incorporated into this finalized BART alternative, and the BART FIP obtains more emission reductions of SO<sub>2</sub> and NO<sub>x</sub> than the level of emissions reductions relied upon by other states during consultation and assumed by other states in their own regional haze SIPs including their reasonable progress goals for their Class I areas. This BART alternative, addressing emissions from both BART eligible and non-BART eligible sources, that in combination provides for greater reasonable progress than BART, is also designed to be part of the long-term strategy needed to meet the reasonable progress requirements of the Regional Haze Rule, which remain outstanding after the remand of our reasonable progress FIP by the Fifth Circuit Court of Appeals. Since the time of our January 4, 2017 proposal on BART, we note that the Fifth Circuit Court of Appeals has remanded without vacatur our prior action on the 2009 Texas Regional Haze SIP and part of the Oklahoma Regional Haze SIP.<sup>127</sup> We contemplate that future action on this remand, including action that may merge with new development of SIP

revisions by the State of Texas as contemplated in its request for the SO<sub>2</sub> BART alternative, will bring closure to the reasonable progress requirement. For these reasons, we find that it is not necessary for us to make determinations of BART for each source subject to BART and covered by the program. In this context, 51.308(e)(2)(i)(C) provides that we may “determine the best system of continuous emission control technology and associated emission reductions for similar types of sources within a source category based on both source-specific and category-wide information, as appropriate.” In this action, we are relying on the determinations of the best system of continuous emission control technology and associated emission reductions for EGUs as was used in our 2012 determination that showed that CSAPR as finalized and amended in 2011 and 2012 achieves more reasonable progress than BART. These determinations were based on category-wide information. Regarding the requirement of 40 CFR 51.308(e)(2)(i)(D), our analysis is that the Texas trading program will effectively limit the aggregate annual SO<sub>2</sub> emissions of the covered EGUs to be no higher than the sum of their allowances. As discussed elsewhere, the average total annual allowance allocation for covered sources is 238,393 tons and an additional 10,000 tons for the Supplemental Allowance pool. In addition, while the Supplemental Allowance pool may grow over time as unused supplemental allowances remain available and allocations from retired units are placed in the supplemental pool, the total number of allowances that can be allocated in a control period from the supplemental pool is limited to a maximum 54,711 tons plus the amount of any allowances placed in the pool that year from retired units and corrections. Therefore, annual average emissions for the covered sources will be less than or equal to 248,393 tons with some year to year variability constrained by the number of banked allowances and number of allowances that can be allocated in a control period from the supplemental pool. The projected SO<sub>2</sub> emission reduction that will be achieved by the program, relative to any selected historical baseline year, is therefore the difference between the aggregate historical baseline emissions of the covered units and the average total annual allocation. For example, the aggregate 2014 SO<sub>2</sub> emissions of the covered EGUs were 309,296 tons per year, while the average total annual allocation for the covered EGUs is

<sup>125</sup> EPA is not determining at this time that this final action fully resolves the EPA’s outstanding obligations with respect to reasonable progress that resulted from the Fifth Circuit’s remand of our reasonable progress FIP. We intend to take future action to address the Fifth Circuit’s remand.

<sup>126</sup> See Table 3 above for list of participating units and identification of BART-eligible participating units.  
<sup>127</sup> *Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016).

248,393 tons/year.<sup>128</sup> Therefore, compared to 2014 emissions, the Texas trading program is projected to achieve an average reduction of approximately 60,903 tons per year.<sup>129</sup> We note that the trading program allows additional sources to opt-in to the program. Should sources choose to opt-in in the future, the average total annual allocation could increase up to a maximum of 289,740. For comparison, the aggregate 2014 SO<sub>2</sub> emissions of the covered EGUs including all potential opt-ins were 343,425 tons per year. Therefore, compared to 2014 emissions, the Texas trading program including all potential opt-ins is projected to achieve an average reduction of approximately 53,685 tons per year.

Regarding the requirement of 40 CFR 51.308(e)(2)(i)(E), the BART alternative being finalized today is supported by our determination that the clear weight of the evidence is that the trading program achieves greater reasonable progress than would be achieved through the installation and operation of BART at the covered sources. The 2012 demonstration showed that CSAPR as finalized and amended in 2011 and 2012 meets the Regional Haze Rule's criteria for a demonstration of greater reasonable progress than BART. This 2012 demonstration is the primary evidence that the Texas trading program achieves greater reasonable progress

than BART. However, the states participating in CSAPR are now slightly different than the geographic scope of CSAPR assumed in the 2012 analytic demonstration. The changes to states participating in both CSAPR NO<sub>x</sub> trading programs resulting from EPA's response to the D.C. Circuit's remand were found by us to have no adverse impact on the 2012 determination that CSAPR participation remains better-than-BART.<sup>130</sup> Regarding SO<sub>2</sub> emissions from Texas, as detailed below, the BART alternative is projected to accomplish emission levels from Texas EGUs that are similar to the emission levels from Texas EGUs that would have been realized from the SO<sub>2</sub> trading program under CSAPR. The changes to the geographic scope of the NO<sub>x</sub> CSAPR programs combined with the expectation that the Texas trading program will reduce the SO<sub>2</sub> emissions of EGUs in Texas to levels similar to CSAPR-participation levels, despite slight differences in EGU participation between the two SO<sub>2</sub> programs, lead to the finding here that post-remand CSAPR and the Texas BART alternative program are better-than-BART for Texas.

The differences in Texas EGU participation in CSAPR and this BART alternative are either not significant or, in some cases, work to demonstrate the relative stringency of the BART alternative as compared to CSAPR. If

Texas EGUs were still required to participate in CSAPR's SO<sub>2</sub> trading program, it would be plainly consistent with previous findings and approvals that CSAPR is an acceptable BART alternative. The Texas trading program will result in emissions from the covered EGUs and other EGUs in Texas that are no higher than if Texas EGUs were still required to participate in CSAPR's SO<sub>2</sub> trading program, and thus the clear weight of evidence is that the Texas trading program will provide more reasonable progress than BART. Still regarding 40 CFR 51.308(e)(2)(i)(E), we have considered the question of whether in applying this portion of the Regional Haze Rule we should take as the baseline the application of source-specific BART at the covered sources. We interpret the rule to not require that approach in this situation, given that 51.308(e)(2)(i)(C) provides for an exception (which we are exercising) to the requirement for source-specific BART determinations for the covered sources. We are not making any source-specific BART determinations in this action, nor did Texas do so in its 2009 SIP submission.

Table 8 below identifies the participating units and their unit-level allocations under the Texas SO<sub>2</sub> trading program. These allocations are the same as under CSAPR.

TABLE 8—ALLOCATIONS FOR TEXAS EGUS SUBJECT TO THE FIP SO<sub>2</sub> TRADING PROGRAM

Owner/operator	Units	Allocations (tpy)
AEP .....	Welsh Power Plant Unit 1 .....	6,496
	Welsh Power Plant Unit 2 .....	7,050
	Welsh Power Plant Unit 3 .....	7,208
	H W Pirkey Power Plant Unit 1 .....	8,882
	Wilkes Unit 1 .....	14
	Wilkes Unit 2 .....	2
CPS Energy .....	Wilkes Unit 3 .....	3
	JT Deely Unit 1 .....	6,170
	JT Deely Unit 2 .....	6,082
	Sommers Unit 1 .....	55
Dynergy .....	Sommers Unit 2 .....	7
	Coleto Creek Unit 1 .....	9,057
El Paso Electric .....	Newman Unit 2 .....	1
	Newman Unit 3 .....	1
	Newman Unit 4 .....	2
LCRA .....	Fayette/Sam Seymour Unit 1 .....	7,979
	Fayette/Sam Seymour Unit 2 .....	8,019
Luminant .....	Big Brown Unit 1 .....	8,473
	Big Brown Unit 2 .....	8,559
	Martin Lake Unit 1 .....	12,024
	Martin Lake Unit 2 .....	11,580
	Martin Lake Unit 3 .....	12,236
	Monticello Unit 1 .....	8,598

<sup>128</sup> Texas sources were subject to CSAPR in 2015 and 2016 but are no longer subject to CSAPR. We therefore select 2014 as the appropriate most recent year for this comparison.

<sup>129</sup> We note that for other types of alternative programs that might be adopted under 40 CFR

51.308(e)(2), the analysis of achievable emission reductions could be more complicated. For example, a program that involved economic incentives instead of allowances or that involved interstate allowance trading would present a more complex situation in which achievable emission reductions could not be calculated simply by

comparing aggregate baseline emissions to aggregate allowances.

<sup>130</sup> 81 FR 78954, 78962 (November 10, 2016) and final action signed September 21, 2017 available at [regulations.gov](http://www.regulations.gov) in Docket No. EPA-HQ-OAR-2016-0598.



TABLE 8—ALLOCATIONS FOR TEXAS EGUS SUBJECT TO THE FIP SO<sub>2</sub> TRADING PROGRAM—Continued

Owner/operator	Units	Allocations (tpy)
NRG .....	Monticello Unit 2 .....	8,795
	Monticello Unit 3 .....	12,216
	Sandow Unit 4 .....	8,370
	Stryker ST2 .....	145
	Graham Unit 2 .....	226
	Limestone Unit 1 .....	12,081
	Limestone Unit 2 .....	12,293
	WA Parish Unit WAP4 .....	3
	WA Parish Unit WAP5 .....	9,580
	WA Parish Unit WAP6 .....	8,900
Xcel .....	WA Parish Unit WAP7 .....	7,653
	Tolk Station Unit 171B .....	6,900
	Tolk Station Unit 172B .....	7,062
	Harrington Unit 061B .....	5,361
	Harrington Unit 062B .....	5,255
	Harrington Unit 063B .....	5,055
Total .....		238,393

The total annual allocation for all sources in the Texas SO<sub>2</sub> trading program is 238,393 tons. In addition, a Supplemental Allowance pool initially holds an additional 10,000 tons for a maximum total annual allocation of 248,393 tons. The Administrator may allocate a limited number of additional allowances from this pool to sources whose emissions exceed their annual

allocation, pursuant to 40 CFR 97.912. Under CSAPR, the total allocations for all existing EGUs in Texas is 279,740 tons, with a total of 294,471 tons including the new unit set aside of 14,430 tons and the Indian country new unit set aside.<sup>131</sup> As shown in Table 9 below, the coverage of the Texas SO<sub>2</sub> trading program represents 81% of the total CSAPR allocation for Texas and

85% of the CSAPR allocations for existing units. The Supplemental Allowance pool contains an additional 10,000 tons, compared to the new unit set aside (NUSA) allowance allocation under CSAPR of 14,430 tons. Examining 2016 emissions, the EGUs covered by the program represent 89% of total Texas EGU emissions.

TABLE 9—COMPARISON OF TEXAS SO<sub>2</sub> TRADING PROGRAM ALLOCATIONS TO PREVIOUSLY APPLICABLE CSAPR ALLOCATIONS AND TO 2016 EMISSIONS

	Annual allocations in the Texas Trading Program (tons per year)	% of total previously applicable CSAPR allocations (294,471 tons per year)	2016 emissions (tons per year)
Texas SO <sub>2</sub> Trading program sources .....	238,393	81	218,291
Total EGU emissions .....			245,737
Supplemental Allowance pool .....	10,000	3.4	
Existing Sources not covered by trading program .....	*	16	27,446

\* No allocation.

The remaining 11% of the total 2016 emissions due to sources not covered by the program come from coal-fired units that on average are better controlled for SO<sub>2</sub> than the covered sources (26,795 tons in 2016) and gas units that rarely burn fuel oil (651 tons in 2016). The table below lists these coal-fired units. The average annual emission rate for 2016 is 0.50 lb/MMBTU for the coal-

fired units participating in the trading program compared to 0.12 lb/MMBTU for the coal-fired units not covered by the program. Therefore, we conclude that in general, based on the current emission rates of the EGUs, should a portion of electricity generation shift to units not covered by the program, the net result would be a decrease in overall SO<sub>2</sub> emissions, as these non-

participating units are on average much better controlled and emit far less SO<sub>2</sub> per unit of energy produced. Relative to current emission levels, should participating units increase their emissions rates and decrease generation to comply with their allocation, emissions from non-participating units may see a small increase.

<sup>131</sup> An Indian Country new unit set-aside is established for each state under the CSAPR that

provides allowances for future new units locating

in Indian Country. The Indian Country new unit set-aside for Texas is 294 tons. See 40 CFR 97.710.



TABLE 10—COAL-FIRED EGUS NOT COVERED BY THE TEXAS SO<sub>2</sub> TRADING PROGRAM

	Previously applicable CSAPR allocation (tons)	2016 emissions (tons)	2016 annual average emission rate (lb/MMBtu)
Fayette/Sam Seymour Unit 3 .....	2,955	231	0.01
Gibbons Creek Unit 1 .....	6,314	138	0.02
JK Spruce Unit 1 .....	4,133	467	0.03
JK Spruce Unit 2 .....	158	151	0.01
Oak Grove Unit 1 .....	1,665	3,334	0.11
Oak Grove Unit 2* .....		3,727	0.12
Oklaunion Unit 1 .....	4,386	1,530	0.11
San Miguel Unit 1 .....	6,271	6,815	0.44
Sandow Station Unit 5A .....	773	1,117	0.11
Sandow Station Unit 5B .....	725	1,146	0.10
Sandy Creek Unit 1* .....		1,842	0.09
Twin Oaks Unit 1 .....	2,326	1,712	0.21
Twin Oaks Unit 2 .....	2,270	1,475	0.23
WA Parish Unit WAP8 .....	4,071	3,112	0.16
Total .....	36,047	26,795	

\* Oak Grove Unit 2 and Sandy Creek Unit 1 received allocations from the new unit set aside under the CSAPR program.

The exclusion of a large number of gas-fired units that occasionally burn fuel oil further limits allowances in the program as compared to CSAPR because CSAPR allocated these units allowances that are higher than their recent and current emissions. In 2016, these units emitted 651 tons of SO<sub>2</sub>, but received allowances for over 5,000 tons. By excluding these sources from the program, those unused allowances are not available for purchase by other EGUs. We note the trading program does allow non-participating sources that previously had CSAPR allocations to opt-in to the trading program and receive an allocation equivalent to the CSAPR level allocation. Should some sources choose to opt-in to the program, the total number of allowances will increase by that amount. This will serve to increase the percentage of CSAPR allowances represented by the Texas SO<sub>2</sub> trading program and increase the portion of emissions covered by the program, more closely resembling the CSAPR program.

Finally, the Texas SO<sub>2</sub> trading program does not allow EGUs to purchase allowances from sources in other states. Under CSAPR, Texas EGUs were allowed to purchase allowances from other Group 2 states, a fact which could, and was projected to, result in an increase in annual allowances used in the State above the state budget. CSAPR also included a variability limit that was set at 18% of the State budget and an assurance level equal to the State's budget plus variability limit. The assurance level for Texas was set at 347,476 tons. The CSAPR assurance provisions are triggered if the State's emissions for a year exceed the assurance level. These assurance

provisions require some sources to surrender two additional allowances per ton beyond the amount equal to their actual emissions, depending on their emissions and annual allocation level. In effect, under CSAPR, EGUs in Texas could emit above the allocation if willing to pay the market price of allowances and the cost associated with each incremental ton of emissions could triple if in the aggregate they exceeded the assurance level. The Texas trading program will have 248,393 tons of allowances allocated every year, with no ability to purchase additional allowances from sources outside of the State, preventing an increase beyond that annual allocation.<sup>132</sup> This includes an annual allocation of 10,000 allowances to the Supplemental Allowance pool. The Supplemental Allowance pool may grow over time as unused supplemental allowances remain available and allocations from retired units are placed in the supplemental pool but the total number of allowances that can be allocated in a control period from in this supplemental pool is limited to a maximum 54,711 tons plus the amount of any allowances placed in the pool that year from retired units and corrections. The 54,711-ton value is equal to 10,000 tons annually allocated to the pool plus 18% of the total annual allocation for participating units, mirroring the variability limit from CSAPR. The total number of allowances that can be allocated in a single year is

<sup>132</sup> We note the trading program does allow non-participating sources that previously had CSAPR allocations to opt-in to the trading program and receive an allocation equivalent to the CSAPR level allocation. Should some sources choose to opt-in to the program, the total number of allowances will increase by that amount.

therefore 293,104, which is the sum of the 238,393 budget for existing units plus 54,711. Annual average emissions for the covered sources will be less than or equal to 248,393 tons with some year to year variability constrained by the number of banked allowances and allowances available to be allocated during a control period from the Supplemental Allowance pool. If additional units opt into the program, additional allowances will be available corresponding to the amounts that those units would have been allocated under CSAPR. The projected SO<sub>2</sub> emissions from the affected Texas EGUs in the CSAPR + BART-elsewhere scenario were 266,600 tons per year. In a 2012 sensitivity analysis memo, EPA conducted a sensitivity analysis that confirmed that CSAPR would remain better-than-BART if Texas EGU emissions increased to approximately 317,100 tons.<sup>133</sup> Under the Texas SO<sub>2</sub> trading program, annual average EGU emissions are anticipated to remain well below 317,100 tons per year as annual allocations for participating units are

<sup>133</sup> For the projected annual SO<sub>2</sub> emissions from Texas EGUs see Technical Support Document for Demonstration of the Transport Rule as a BART Alternative, Docket ID No. EPA-HQ-OAR-2011-0729-0014 (December 2011) (2011 CSAPR/BART Technical Support Document), available in the docket for this action, at table 2-4. Certain CSAPR budgets were increased after promulgation of the CSAPR final rule (and the increases were addressed in the 2012 CSAPR/BART sensitivity analysis memo). See memo titled "Sensitivity Analysis Accounting for Increases in Texas and Georgia Transport Rule State Emissions Budgets," Docket ID No. EPA-HQ-OAR-2011-0729-0323 (May 29, 2012), available in the docket for this action. The increase in the Texas SO<sub>2</sub> budget was 50,517 tons which, when added to the Texas SO<sub>2</sub> emissions projected in the CSAPR + BART-elsewhere scenario of 266,600 tons, yields total potential SO<sub>2</sub> emissions from Texas EGUs of approximately 317,100 tons.

held at 248,393 tons per year. Sources not covered by the program emitted less than 27,500 tons of SO<sub>2</sub> in 2016 and are not projected to significantly increase from this level. Any new units would be required to be well controlled and similar to the existing units not covered by the program, they would not significantly increase total emissions of SO<sub>2</sub>. Furthermore, as discussed above, any load shifting to these new non-participating units would be projected to result in a net decrease in emissions per unit of electricity generated and at most a small increase in total SO<sub>2</sub> emissions compared to them not having been brought into operation. We note that total emissions of SO<sub>2</sub> from all EGU sources in Texas in 2016 were 245,737 tons.

We also note that state-wide EGU emissions in Texas have decreased considerably since the 2002 baseline period, reflecting market changes and reductions due to requirements such as CAIR/CSAPR. In 2002, Texas EGU emissions were 560,860 tons of SO<sub>2</sub> compared to emissions of 245,737 tons in 2016, a reduction of over 56%. The Texas SO<sub>2</sub> trading program locks in the large majority of these reductions by limiting allocation of allowances to 248,393 tons per year for participating sources. While the Texas program does not include all EGU sources in the State, as discussed above, the EGUs outside of the program contribute relatively little to the total state emissions and these units on average are better controlled for SO<sub>2</sub> than the units subject to the Texas program.

### *C. Specific Texas SO<sub>2</sub> Trading Program Features*

The Texas SO<sub>2</sub> Trading Program is an intrastate cap-and-trade program for listed covered sources in the State of Texas. The EPA is promulgating the Texas SO<sub>2</sub> Trading Program under 40 CFR 52.2312 and subpart FFFFF of part 97. The State of Texas may choose to remain under the Texas SO<sub>2</sub> Trading Program or replace it with an appropriate SIP. If the State of Texas is interested in pursuing delegation of the Texas SO<sub>2</sub> Trading Program, the request would need to provide a demonstration of the State's statutory authority to implement any delegated elements.

The Texas SO<sub>2</sub> Trading Program is modeled after the EPA's CSAPR SO<sub>2</sub> Group 2 Trading Program and satisfies the requirements of § 51.308(e)(2)(vi). Similar to the CSAPR SO<sub>2</sub> Group 2 Trading Program, the Texas SO<sub>2</sub> Trading Program sets an SO<sub>2</sub> emission budget for the State of Texas. Authorizations to emit SO<sub>2</sub>, known as allowances, are allocated to affected units. The Texas

SO<sub>2</sub> Trading Program provides flexibility to affected units and sources by allowing units and sources to determine their own compliance path; this includes adding or operating control technologies, upgrading or improving controls, switching fuels, and using allowances. Sources can buy and sell allowances and bank (save) allowances for future use as long as each source holds enough allowances to account for its emissions of SO<sub>2</sub> by the end of the compliance period.

Pursuant to the requirements of § 51.308(e)(2)(vi)(A), the applicability of the Texas SO<sub>2</sub> Trading Program is defined in 40 CFR 97.904. Section 97.904(a) identifies the subject units, which include all BART-eligible coal-fired EGUs, additional coal-fired EGUs, and several BART-eligible gas-fired and gas/fuel oil-fired EGUs, all of which were previously covered by the CSAPR SO<sub>2</sub> Group 2 Trading Program. Additionally, under 40 CFR 97.904(b), the EPA is providing an opportunity for any other unit in the State of Texas that was subject to the CSAPR SO<sub>2</sub> Group 2 Trading Program to opt-in to the Texas SO<sub>2</sub> Trading Program. We discuss in Section V.B above, how the applicability results in coverage of the Texas SO<sub>2</sub> trading program representing 81% of the total CSAPR allocation for Texas and 85% of the CSAPR allocations for existing units, and how potential shifts in generation would result in an insignificant change in emissions. The Texas SO<sub>2</sub> Trading Program establishes the statewide SO<sub>2</sub> budget for the subject units at 40 CFR 97.910(a). This budget is equal to the allowances for each subject unit identified under §§ 97.904(a) and 97.911(a). As units opt-in to the Texas SO<sub>2</sub> Trading under § 97.904(b), the allowances for each of these units will equal their CSAPR SO<sub>2</sub> Group 2 allowances under § 97.911(b). Additionally, the EPA has established a Supplemental Allowance Pool with a budget of 10,000 tons of SO<sub>2</sub> to provide compliance assistance to subject units and sources. Section 40 CFR 97.912 establishes how allowances are allocated from the Supplemental Allowance Pool to sources (collections of participating units at a facility) that have reported total emissions for that control period exceeding the total amounts of allowances allocated to the participating units at the source for that control period (before any allocation from the Supplemental Allowance Pool). For any control period, the maximum supplemental allocation from the Supplemental Allowance Pool that a source may receive is the amount by

which the total emissions reported for its participating units exceed the total allocations to its participating units (before any allocation from the Supplemental Allowance Pool). If the total amount of allowances available for allocation from the Supplemental Allowance Pool for a control period is less than the sum of these maximum allocations, sources will receive less than the maximum supplemental allocation from the Supplemental Allowance Pool, where the amount of supplemental allocations for each source is determined in proportion to the sources' respective maximum allocations, with one exception. While all other sources required to participate in the trading program have flexibility to transfer allowances among multiple participating units under the same owner/operator when planning operations, Coletto Creek consists of only one coal-fired unit and is the only coal-fired unit in Texas owned and operated by Dynegy. To provide this source additional flexibility, Coletto Creek will be allocated its maximum supplemental allocation from the Supplemental Allowance Pool as long as there are sufficient allowances in the Supplemental Allowance Pool available for allocation, and its actual allocation will not be reduced in proportion with any reductions made to the supplemental allocations to other sources. Section 97.921 establishes how the Administrator will record the allowances for the Texas SO<sub>2</sub> Trading Program and ensures that the Administrator will not record more allowances than are available under the program consistent with 40 CFR 51.308(e)(2)(vi)(B). The monitoring, recordkeeping, and reporting provisions for the Texas SO<sub>2</sub> Trading Program at 40 CFR 97.930–97.935 are consistent with those requirements in the CSAPR SO<sub>2</sub> Group 2 Trading Program. The provisions in 40 CFR 97.930–97.935 require the subject units to comply with the monitoring, recordkeeping, and reporting requirements for SO<sub>2</sub> emissions in 40 CFR part 75; thereby satisfying the requirements of § 51.308(e)(2)(vi)(C)–(E). The Texas SO<sub>2</sub> Trading Program will be implemented by the EPA using the Allowance Management System. The use of the Allowance Management System will provide a consistent approach to implementation and tracking of allowances and emissions for the EPA, subject sources, and the public consistent with the requirements of 40 CFR 51.308(e)(2)(vi)(F). Additionally, the EPA is promulgating requirements at 40 CFR 97.913–97.918 for designated

and alternate designated representatives that satisfy the requirements of 40 CFR 51.308(e)(2)(vi)(G) and are consistent with the EPA's other trading programs under 40 CFR part 97. Allowance transfer provisions for the Texas SO<sub>2</sub> Trading Program at 40 CFR 97.922 and 97.923 provide procedures that allow timely transfer and recording of allowances; these provisions will minimize administrative barriers to the operation of the allowance market and ensure that such procedures apply uniformly to all sources and other potential participants in the allowance market, consistent with 40 CFR 51.308(e)(2)(vi)(H). Compliance provisions for the Texas SO<sub>2</sub> Trading Program at 40 CFR 97.924 prohibit a source from emitting a total tonnage of SO<sub>2</sub> that exceeds the tonnage value of its SO<sub>2</sub> allowance holdings as required by 40 CFR 51.308(e)(2)(vi)(I). The Texas SO<sub>2</sub> Trading Program includes automatic allowance surrender provisions at 40 CFR 97.924(d) that apply consistently from source to source and the tonnage value of the allowances deducted shall equal at least three times the tonnage of the excess emissions, consistent with the penalty provisions at 40 CFR 51.308(e)(2)(vi)(J). The Texas SO<sub>2</sub> Trading Program provides for banking of allowances under 40 CFR 97.926; Texas SO<sub>2</sub> Trading Program allowances are valid for compliance in the control period of issuance or may be banked for future use, consistent with 40 CFR 51.308(e)(2)(vi)(K). The EPA is promulgating the Texas SO<sub>2</sub> Trading Program as a BART-alternative for Texas' Regional Haze obligations. The CAA and EPA's implementing regulations require periodic review of the state's regional haze approach under

40 CFR 51.308(g) to evaluate progress towards the reasonable progress goals for Class I areas located within the State and Class I areas located outside the State affected by emissions from within the State. Because the Texas SO<sub>2</sub> Trading Program is a BART-alternative for Texas' Regional Haze obligations, this program is required to be reviewed in each progress report. We anticipate this progress report will provide the information needed to assess program performance, as required by 40 CFR 51.308(e)(2)(vi)(L).

As previously discussed, the EPA modeled the Texas SO<sub>2</sub> Trading Program after the EPA's CSAPR SO<sub>2</sub> Group 2 Trading Program. Relying on a trading program structure that is already in effect enables the EPA, the subject sources, and the public to benefit from the use of the Allowance Management System, forms, and monitoring, recordkeeping, and reporting requirements. However, there are a few features of the Texas SO<sub>2</sub> Trading Program that are separate and unique from the EPA's CSAPR. First, the program does not address new units that are built after the inception of the program; these units would be permitted and constructed using emission control technology determined under either BACT or LAER review, as applicable. Second, the Texas SO<sub>2</sub> Trading Program provides that sources that were previously covered under the CSAPR SO<sub>2</sub> Group 2 Trading Program, but are not subject to the requirements of subpart FFFFF of part 97 can opt-in to the Texas SO<sub>2</sub> Trading Program at the allocation level established under CSAPR. Finally, the Texas SO<sub>2</sub> Trading Program includes a Supplemental Allowance Pool to provide some compliance assistance to units whose

emissions exceed their allocations. The amount of allocations to the Supplemental Allowance Pool each year is less than the portion of the Texas budget under the CSAPR SO<sub>2</sub> Group 2 Trading Program that would have been set aside each year for new units (and which would have been allocated to existing units to the extent not needed by new units).

## VI. Final Action

### A. Regional Haze

We are finalizing our identification of BART-eligible EGUs. We are approving the portion of the Texas Regional Haze SIP that addresses the BART requirement for EGUs for PM. As discussed elsewhere in this preamble, we are replacing Texas' reliance on CAIR with reliance on CSAPR to address the NO<sub>x</sub> BART requirements for EGUs. To address the SO<sub>2</sub> BART requirements for EGUs, we are promulgating a FIP to replace Texas' reliance on CAIR with reliance on an intrastate SO<sub>2</sub> trading program for certain EGUs identified in Table 11 below. This FIP is codified under 40 CFR 52.2312 and subpart FFFFF of part 97. We are finalizing our determination that BART-eligible EGUs not covered by the intrastate SO<sub>2</sub> trading program are not subject-to-BART. This final action is also part of the long-term strategy to address the reasonable progress requirements for Texas EGUs, which remain outstanding after the remand of our reasonable progress FIP by the Fifth Circuit Court of Appeals. However, further assessment and analysis of the CAA's reasonable progress factors will be needed before the Regional Haze Rule's reasonable progress requirements will be fully addressed for Texas.

TABLE 11—TEXAS EGUS SUBJECT TO THE FIP SO<sub>2</sub> TRADING PROGRAM

Owner/operator	Units
AEP .....	Welsh Power Plant Units 1, 2, and 3. H W Pirkey Power Plant Unit 1. Wilkes Units 1*, 2*, and 3*.
CPS Energy .....	JT Deely Units 1 and 2, Sommers Units 1* and 2*.
Dynegy .....	Coletto Creek Unit 1.
LCRA .....	Fayette/Sam Seymour Units 1 and 2.
Luminant .....	Big Brown Units 1 and 2. Martin Lake Units 1, 2, and 3. Monticello Units 1, 2, and 3. Sandow Unit 4. Stryker ST2*. Graham Unit 2*.
NRG .....	Limestone Units 1 and 2.
Xcel .....	WA Parish Units WAP4*, WAP5, WAP6, WAP7.
El Paso Electric .....	Tolk Station Units 171B and 172B. Harrington Units 061B, 062B, and 063B. Newman Units 2*, 3*, and 4*.

\* Gas-fired or gas/fuel oil-fired units.



### B. Interstate Visibility Transport

In our January 5, 2016 final action<sup>134</sup> we disapproved the portion of Texas' SIP revisions intended to address interstate visibility transport for six NAAQS, including the 1997 8-hour ozone and 1997 PM<sub>2.5</sub>.<sup>135</sup> That rulemaking was challenged, however, and in December 2016, following the submittal of a request by the EPA for a voluntary remand of the parts of the rule under challenge, the Fifth Circuit Court of Appeals remanded the rule in its entirety without vacatur.<sup>136</sup> In our January 4, 2017 proposed action we proposed to reconsider the basis of our prior disapproval of Texas' SIP revisions addressing interstate visibility transport under CAA section 110(a)(2)(D)(i)(II) for six NAAQS. We have reconsidered the basis of our prior disapproval and are disapproving Texas' SIP revisions addressing interstate visibility transport under CAA section 110(a)(2)(D)(i)(II) for six NAAQS. We are finalizing a FIP to fully address Texas' interstate visibility transport obligations for the following six NAAQS: (1) 1997 8-hour ozone, (2) 1997 PM<sub>2.5</sub> (annual and 24 hour), (3) 2006 PM<sub>2.5</sub> (24-hour), (4) 2008 8-hour ozone, (5) 2010 1-hour NO<sub>2</sub> and (6) 2010 1-hour SO<sub>2</sub>. The BART FIP emission reductions are consistent with the level of emission reductions relied upon by other states during Regional Haze consultation, and it is therefore adequate to ensure that emissions from Texas do not interfere with measures to protect visibility in nearby states in accordance with CAA section 110(a)(2)(D)(i)(II).

## VII. Statutory and Executive Order Reviews

### A. Executive Order 12866: Regulatory Planning and Overview, Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a "significant regulatory action" under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011).

### B. Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

This action is not an Executive Order 13771 regulatory action because this action is not significant under Executive Order 12866.

### C. Paperwork Reduction Act

The Office of Management and Budget (OMB) has determined that this action imposes a collection burden that is subject to the Paperwork Reduction Act (PRA). An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Therefore, the EPA will obtain a valid OMB control number unless OMB determines that these collection activities are covered under an existing information collection request (ICR) and associated OMB control number. If the EPA obtains a new OMB control number or amends an existing ICR with a valid OMB control number, the EPA will provide notice in the **Federal Register** as required by the PRA and the implementing regulations, with burden estimates, and, if necessary, publish a technical amendment to 40 CFR part 9 to display the new OMB control number for the information collection activities contained in this final rule.

### D. Regulatory Flexibility Act

I certify that this action will not have a significant impact on a substantial number of small entities. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden or otherwise has a positive economic effect on the small entities subject to the rule. This rule does not impose any requirements or create impacts on small entities. This FIP action under Section 110 of the CAA will not create any new requirement with which small entities must comply. Accordingly, it affords no opportunity for the EPA to fashion for small entities less burdensome compliance or reporting requirements or timetables or exemptions from all or part of the rule. The fact that the CAA prescribes that various consequences (e.g., emission limitations) may or will flow from this action does not mean that the EPA either can or must conduct a regulatory flexibility analysis for this action. We have therefore concluded that, this action will have no net

regulatory burden for all directly regulated small entities.

### E. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of \$100 million or more as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments.

### F. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

### G. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This rule does not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments. Thus, Executive Order 13175 does not apply to this rule.

### H. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks<sup>137</sup> applies to any rule that: (1) Is determined to be economically significant as defined under Executive Order 12866; and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. EPA interprets EO 13045 as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under Section 5–501 of the EO has the potential to influence the regulation. This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action is not subject to EO 13045 because it implements specific standards established by Congress in statutes. However, to the extent this rule will limit emissions of SO<sub>2</sub>, the rule will have a beneficial effect on children's health by reducing air pollution.

<sup>134</sup> 81 FR 296 (Jan. 5, 2016).

<sup>135</sup> Specifically, we previously disapproved the relevant portion of these Texas' SIP submittals: April 4, 2008: 1997 8-hour Ozone, 1997 PM<sub>2.5</sub> (24-hour and annual); May 1, 2008: 1997 8-hour Ozone, 1997 PM<sub>2.5</sub> (24-hour and annual); November 23, 2009: 2006 24-hour PM<sub>2.5</sub>; December 7, 2012: 2010 NO<sub>2</sub>; December 13, 2012: 2008 8-hour Ozone; May 6, 2013: 2010 1-hour SO<sub>2</sub> (Primary NAAQS). 79 FR 74818, 74821; 81 FR 296, 302.

<sup>136</sup> *Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016).

<sup>137</sup> 62 FR 19885 (Apr. 23, 1997).

*I. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use*

This action is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

*J. National Technology Transfer and Advancement Act (NTTAA)*

This action involves technical standards. The EPA has decided to use the applicable monitoring requirements of 40 CFR part 75. Part 75 already incorporates a number of voluntary consensus standards. Consistent with the Agency's Performance Based Measurement System (PBMS), part 75 sets forth performance criteria that allow the use of alternative methods to the ones set forth in part 75. The PBMS approach is intended to be more flexible and cost-effective for the regulated community; it is also intended to encourage innovation in analytical technology and improved data quality. At this time, EPA is not recommending any revisions to part 75; however, EPA periodically revises the test procedures set forth in part 75. When EPA revises the test procedures set forth in part 75 in the future, EPA will address the use of any new voluntary consensus standards that are equivalent. Currently, even if a test procedure is not set forth in part 75, EPA is not precluding the use of any method, whether it constitutes a voluntary consensus standard or not, as long as it meets the performance criteria

specified; however, any alternative methods must be approved through the petition process under 40 CFR 75.66 before they are used.

*K. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*

The EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). We have determined that this rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. The rule limits emissions of SO<sub>2</sub> from certain facilities in Texas.

*L. Congressional Review Act (CRA)*

This rule is exempt from the CRA because it is a rule of particular applicability.

**List of Subjects**

*40 CFR Part 52*

Environmental protection, Air pollution control, Best available retrofit technology, Incorporation by reference,

Intergovernmental relations, Interstate transport of pollution, Nitrogen dioxide, Ozone, Particulate matter, Regional haze, Reporting and recordkeeping requirements, Sulfur dioxides, Visibility.

*40 CFR Part 97*

Environmental protection, Administrative practice and procedure, Air pollution control, Intergovernmental relations, Nitrogen dioxide, Reporting and recordkeeping requirements, Sulfur dioxides.

Dated: September 29, 2017.

**E. Scott Pruitt,**  
Administrator.

40 CFR parts 52 and 97 are amended as follows:

**PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS**

■ 1. The authority citation for part 52 continues to read as follows:

**Authority:** 42 U.S.C. 7401 *et seq.*

**Subpart SS—Texas**

■ 2. In § 52.2270, the second table in paragraph (e) is amended by adding the entry “Texas Regional Haze BART Requirement for EGUs for PM” at the end of the table to read as follows:

**§ 52.2270 Identification of plan.**

\* \* \* \* \*

(e) \* \* \*

**EPA APPROVED NONREGULATORY PROVISIONS AND QUASI-REGULATORY MEASURES IN THE TEXAS SIP**

Name of SIP provision	Applicable geographic or nonattainment area	State submittal date/effective date	EPA approval date	Comments
* * *	* * *	* * *	* * *	* * *
Texas Regional Haze BART Requirement for EGUs for PM.	Statewide .....	3/31/2009	10/17/2017, [insert <b>Federal Register</b> citation].	

■ 3. Section 52.2304 is amended by adding paragraph (f) to read as follows:

**§ 52.2304 Visibility protection.**

\* \* \* \* \*

(f) *Measures addressing disapproval associated with NO<sub>x</sub> and SO<sub>2</sub>.* (1) The deficiencies associated with NO<sub>x</sub> identified in EPA's limited disapproval of the regional haze plan submitted by Texas on March 31, 2009, and EPA's disapprovals in paragraph (d) of this section, are satisfied by § 52.2283(d).

(2) The deficiencies associated with SO<sub>2</sub> identified in EPA's limited

disapproval of the regional haze plan submitted by Texas on March 31, 2009, and EPA's disapprovals in paragraph (d) of this section), are satisfied by § 52.2312.

■ 4. Add § 52.2312 to subpart SS to read as follows:

**§ 52.2312 Requirements for the control of SO<sub>2</sub> emissions to address in full or in part requirements related to BART, reasonable progress, and interstate visibility transport.**

(a) The Texas SO<sub>2</sub> Trading Program provisions set forth in subpart FFFFF of part 97 of this chapter constitute the Federal Implementation Plan provisions

fully addressing Texas' obligations with respect to best available retrofit technology under section 169A of the Act and the deficiencies associated with EPA's disapprovals in § 52.2304(d) and partially addressing Texas' obligations with respect to reasonable progress under section 169A of the Act, as those obligations relate to emissions of sulfur dioxide (SO<sub>2</sub>) from electric generating units (EGUs).

(b) The provisions of subpart FFFFF of part 97 of this chapter apply to sources in Texas but not sources in Indian country located within the

borders of Texas, with regard to emissions in 2019 and each subsequent year.

**PART 97—FEDERAL NO<sub>x</sub> BUDGET TRADING PROGRAM, CAIR NO<sub>x</sub> AND SO<sub>2</sub> TRADING PROGRAMS, CSAPR NO<sub>x</sub> AND SO<sub>2</sub> TRADING PROGRAMS, AND TEXAS SO<sub>2</sub> TRADING PROGRAM**

■ 5. The authority citation for part 97 continues to read as follows:

**Authority:** 42 U.S.C. 7401, 7403, 7410, 7426, 7601, and 7651, *et seq.*

■ 6. Revise the part heading for part 97 to read as set forth above.

■ 7. Add subpart FFFFF consisting of §§ 97.901 through 97.935 to read as follows:

**Subpart FFFFF—Texas SO<sub>2</sub> Trading Program**

- Sec.
- 97.901 Purpose.
  - 97.902 Definitions.
  - 97.903 Measurements, abbreviations, and acronyms.
  - 97.904 Applicability.
  - 97.905 Retired unit exemptions.
  - 97.906 General provisions.
  - 97.907 Computation of time.
  - 97.908 Administrative appeal procedures.
  - 97.909 [Reserved]
  - 97.910 Texas SO<sub>2</sub> Trading Program and Supplemental Allowance Pool Budgets.
  - 97.911 Texas SO<sub>2</sub> Trading Program allowance allocations.
  - 97.912 Texas SO<sub>2</sub> Trading Program Supplemental Allowance Pool.
  - 97.913 Authorization of designated representative and alternate designated representative.
  - 97.914 Responsibilities of designated representative and alternate designated representative.
  - 97.915 Changing designated representative and alternate designated representative; changes in owners and operators; changes in units at the source.
  - 97.916 Certificate of representation.
  - 97.917 Objections concerning designated representative and alternate designated representative.
  - 97.918 Delegation by designated representative and alternate designated representative.
  - 97.919 [Reserved]
  - 97.920 Establishment of compliance accounts and general accounts.
  - 97.921 Recordation of Texas SO<sub>2</sub> Trading Program allowance allocations.
  - 97.922 Submission of Texas SO<sub>2</sub> Trading Program allowance transfers.
  - 97.923 Recordation of Texas SO<sub>2</sub> Trading Program allowance transfers.
  - 97.924 Compliance with Texas SO<sub>2</sub> Trading Program emissions limitations.
  - 97.925 [Reserved]
  - 97.926 Banking.
  - 97.927 Account error.
  - 97.928 Administrator's action on submissions.
  - 97.929 [Reserved]
  - 97.930 General monitoring, recordkeeping, and reporting requirements.

- 97.931 Initial monitoring system certification and recertification procedures.
- 97.932 Monitoring system out-of-control periods.
- 97.933 Notifications concerning monitoring.
- 97.934 Recordkeeping and reporting.
- 97.935 Petitions for alternatives to monitoring, recordkeeping, or reporting requirements.

**Subpart FFFFF—Texas SO<sub>2</sub> Trading Program**

**§ 97.901 Purpose.**

This subpart sets forth the general, designated representative, allowance, and monitoring provisions for the Texas SO<sub>2</sub> Trading Program under sections 110 and 169A of the Clean Air Act and 40 CFR 52.2312, as a means of addressing Texas' obligations with respect to BART, reasonable progress, and interstate visibility transport as those obligations relate to sulfur dioxide emissions from electricity generating units.

**§ 97.902 Definitions.**

The terms used in this subpart shall have the meanings set forth in this section as follows:

*Acid rain program* means a multi-state SO<sub>2</sub> and NO<sub>x</sub> air pollution control and emission reduction program established by the Administrator under title IV of the Clean Air Act and parts 72 through 78 of this chapter.

*Administrator* means the Administrator of the United States Environmental Protection Agency or the Director of the Clean Air Markets Division (or its successor determined by the Administrator) of the United States Environmental Protection Agency, the Administrator's duly authorized representative under this subpart.

*Allocate or allocation* means, with regard to Texas SO<sub>2</sub> Trading Program allowances, the determination by the Administrator, State, or permitting authority, in accordance with this subpart or any SIP revision submitted by the State approved by the Administrator, of the amount of such Texas SO<sub>2</sub> Trading Program allowances to be initially credited, at no cost to the recipient, to a Texas SO<sub>2</sub> Trading Program unit.

*Allowance management system* means the system by which the Administrator records allocations, transfers, and deductions of Texas SO<sub>2</sub> Trading Program allowances under the Texas SO<sub>2</sub> Trading Program. Such allowances are allocated, recorded, held, transferred, or deducted only as whole allowances.

*Allowance management system account* means an account in the

Allowance Management System established by the Administrator for purposes of recording the allocation, holding, transfer, or deduction of Texas SO<sub>2</sub> Trading Program allowances.

*Allowance transfer deadline* means, for a control period in a given year, midnight of March 1 (if it is a business day), or midnight of the first business day thereafter (if March 1 is not a business day), immediately after such control period and is the deadline by which a Texas SO<sub>2</sub> Trading Program allowance transfer must be submitted for recordation in a Texas SO<sub>2</sub> Trading Program source's compliance account in order to be available for use in complying with the source's Texas SO<sub>2</sub> Trading Program emissions limitation for such control period in accordance with §§ 97.906 and 97.924.

*Alternate designated representative* means, for a Texas SO<sub>2</sub> Trading Program source and each Texas SO<sub>2</sub> Trading Program unit at the source, the natural person who is authorized by the owners and operators of the source and all such units at the source, in accordance with this subpart, to act on behalf of the designated representative in matters pertaining to the Texas SO<sub>2</sub> Trading Program. If the Texas SO<sub>2</sub> Trading Program source is also subject to the Acid Rain Program or CSAPR NO<sub>x</sub> Ozone Season Group 2 Trading Program, then this natural person shall be the same natural person as the alternate designated representative as defined in the respective program.

*Authorized account representative* means, for a general account, the natural person who is authorized, in accordance with this subpart, to transfer and otherwise dispose of Texas SO<sub>2</sub> trading Program allowances held in the general account and, for a Texas SO<sub>2</sub> Trading Program source's compliance account, the designated representative of the source.

*Automated data acquisition and handling system or DAHS* means the component of the continuous emission monitoring system, or other emissions monitoring system approved for use under this subpart, designed to interpret and convert individual output signals from pollutant concentration monitors, flow monitors, diluent gas monitors, and other component parts of the monitoring system to produce a continuous record of the measured parameters in the measurement units required by this subpart.

*Business day* means a day that does not fall on a weekend or a federal holiday.

*Clean Air Act* means the Clean Air Act, 42 U.S.C. 7401, *et seq.*



*Coal* means “coal” as defined in § 72.2 of this chapter.

*Commence commercial operation* means, with regard to a Texas SO<sub>2</sub> Trading Program unit, to have begun to produce steam, gas, or other heated medium used to generate electricity for sale or use, including test generation.

*Common stack* means a single flue through which emissions from 2 or more units are exhausted.

*Compliance account* means an Allowance Management System account, established by the Administrator for a Texas SO<sub>2</sub> Trading Program source under this subpart, in which any Texas SO<sub>2</sub> Trading Program allowance allocations to the Texas SO<sub>2</sub> Trading Program units at the source are recorded and in which are held any Texas SO<sub>2</sub> Trading Program allowances available for use for a control period in a given year in complying with the source's Texas SO<sub>2</sub> Trading Program emissions limitation in accordance with §§ 97.906 and 97.924.

*Continuous emission monitoring system* or *CEMS* means the equipment required under this subpart to sample, analyze, measure, and provide, by means of readings recorded at least once every 15 minutes and using an automated data acquisition and handling system (DAHS), a permanent record of SO<sub>2</sub> emissions, stack gas volumetric flow rate, stack gas moisture content, and O<sub>2</sub> or CO<sub>2</sub> concentration (as applicable), in a manner consistent with part 75 of this chapter and §§ 97.930 through 97.935. The following systems are the principal types of continuous emission monitoring systems:

(1) A flow monitoring system, consisting of a stack flow rate monitor and an automated data acquisition and handling system and providing a permanent, continuous record of stack gas volumetric flow rate, in standard cubic feet per hour (scfh);

(2) A SO<sub>2</sub> monitoring system, consisting of a SO<sub>2</sub> pollutant concentration monitor and an automated data acquisition and handling system and providing a permanent, continuous record of SO<sub>2</sub> emissions, in parts per million (ppm);

(3) A moisture monitoring system, as defined in § 75.11(b)(2) of this chapter and providing a permanent, continuous record of the stack gas moisture content, in percent H<sub>2</sub>O;

(4) A CO<sub>2</sub> monitoring system, consisting of a CO<sub>2</sub> pollutant concentration monitor (or an O<sub>2</sub> monitor plus suitable mathematical equations from which the CO<sub>2</sub> concentration is derived) and an automated data acquisition and handling system and providing a permanent, continuous

record of CO<sub>2</sub> emissions, in percent CO<sub>2</sub>; and

(5) An O<sub>2</sub> monitoring system, consisting of an O<sub>2</sub> concentration monitor and an automated data acquisition and handling system and providing a permanent, continuous record of O<sub>2</sub>, in percent O<sub>2</sub>.

*Control period* means the period starting January 1 of a calendar year, except as provided in § 97.906(c)(3), and ending on December 31 of the same year, inclusive.

*CSAPR NO<sub>x</sub> Ozone Season Group 2 Trading Program* means a multi-state NO<sub>x</sub> air pollution control and emission reduction program established in accordance with subpart EEEEE of this part and § 52.38(b)(1), (b)(2)(i) and (iii), (b)(6) through (11), and (b)(13) of this chapter (including such a program that is revised in a SIP revision approved by the Administrator under § 52.38(b)(7) or (8) of this chapter or that is established in a SIP revision approved by the Administrator under § 52.38(b)(6) or (9) of this chapter), as a means of mitigating interstate transport of ozone and NO<sub>x</sub>.

*Designated representative* means, for a Texas SO<sub>2</sub> Trading Program source and each Texas SO<sub>2</sub> Trading Program unit at the source, the natural person who is authorized by the owners and operators of the source and all such units at the source, in accordance with this subpart, to represent and legally bind each owner and operator in matters pertaining to the Texas SO<sub>2</sub> Trading Program. If the Texas SO<sub>2</sub> Trading Program source is also subject to the Acid Rain Program or CSAPR NO<sub>x</sub> Ozone Season Group 2 Trading Program, then this natural person shall be the same natural person as the designated representative as defined in the respective program.

*Emissions* means air pollutants exhausted from a unit or source into the atmosphere, as measured, recorded, and reported to the Administrator by the designated representative, and as modified by the Administrator:

(1) In accordance with this subpart; and

(2) With regard to a period before the unit or source is required to measure, record, and report such air pollutants in accordance with this subpart, in accordance with part 75 of this chapter.

*Excess emissions* means any ton of emissions from the Texas SO<sub>2</sub> Trading Program units at a Texas SO<sub>2</sub> Trading Program source during a control period in a given year that exceeds the Texas SO<sub>2</sub> Trading Program emissions limitation for the source for such control period.

*Fossil fuel* means natural gas, petroleum, coal, or any form of solid,

liquid, or gaseous fuel derived from such material.

*Fossil-fuel-fired* means, with regard to a unit, combusting any amount of fossil fuel in 2005 or any calendar year thereafter.

*General account* means an Allowance Management System account, established under this subpart, which is not a compliance account.

*Generator* means a device that produces electricity.

*Heat input* means, for a unit for a specified period of unit operating time, the product (in mmBtu) of the gross calorific value of the fuel (in mmBtu/lb) fed into the unit multiplied by the fuel feed rate (in lb of fuel/time) and unit operating time, as measured, recorded, and reported to the Administrator by the designated representative and as modified by the Administrator in accordance with this subpart and excluding the heat derived from preheated combustion air, recirculated flue gases, or exhaust.

*Heat input rate* means, for a unit, the quotient (in mmBtu/hr) of the amount of heat input for a specified period of unit operating time (in mmBtu) divided by unit operating time (in hr) or, for a unit and a specific fuel, the amount of heat input attributed to the fuel (in mmBtu) divided by the unit operating time (in hr) during which the unit combusts the fuel.

*Indian country* means “Indian country” as defined in 18 U.S.C. 1151.

*Life-of-the-unit, firm power contractual arrangement* means a unit participation power sales agreement under which a utility or industrial customer reserves, or is entitled to receive, a specified amount or percentage of nameplate capacity and associated energy generated by any specified unit and pays its proportional amount of such unit's total costs, pursuant to a contract:

(1) For the life of the unit;

(2) For a cumulative term of no less than 30 years, including contracts that permit an election for early termination; or

(3) For a period no less than 25 years or 70 percent of the economic useful life of the unit determined as of the time the unit is built, with option rights to purchase or release some portion of the nameplate capacity and associated energy generated by the unit at the end of the period.

*Monitoring system* means any monitoring system that meets the requirements of this subpart, including a continuous emission monitoring system, an alternative monitoring system, or an excepted monitoring system under part 75 of this chapter.

*Nameplate capacity* means, starting from the initial installation of a generator, the maximum electrical generating output (in MWe, rounded to the nearest tenth) that the generator is capable of producing on a steady state basis and during continuous operation (when not restricted by seasonal or other deratings) as of such installation as specified by the manufacturer of the generator or, starting from the completion of any subsequent physical change in the generator resulting in an increase in the maximum electrical generating output that the generator is capable of producing on a steady state basis and during continuous operation (when not restricted by seasonal or other deratings), such increased maximum amount (in MWe, rounded to the nearest tenth) as of such completion as specified by the person conducting the physical change.

*Natural gas* means “natural gas” as defined in § 72.2 of this chapter.

*Natural person* means a human being, as opposed to a legal person, which may be a private (i.e., business entity or non-governmental organization) or public (i.e., government) organization.

*Operate or operation* means, with regard to a unit, to combust fuel.

*Operator* means, for a Texas SO<sub>2</sub> Trading Program source or a Texas SO<sub>2</sub> Trading Program unit at a source respectively, any person who operates, controls, or supervises a Texas SO<sub>2</sub> Trading Program unit at the source or the Texas SO<sub>2</sub> Trading Program unit and shall include, but not be limited to, any holding company, utility system, or plant manager of such source or unit.

*Owner* means, for a Texas SO<sub>2</sub> Trading Program source or a Texas SO<sub>2</sub> Trading Program unit at a source, any of the following persons:

(1) Any holder of any portion of the legal or equitable title in a Texas SO<sub>2</sub> Trading Program unit at the source or the Texas SO<sub>2</sub> Trading Program unit;

(2) Any holder of a leasehold interest in a Texas SO<sub>2</sub> Trading Program unit at the source or the Texas SO<sub>2</sub> Trading Program unit, provided that, unless expressly provided for in a leasehold agreement, “owner” shall not include a passive lessor, or a person who has an equitable interest through such lessor, whose rental payments are not based (either directly or indirectly) on the revenues or income from such Texas SO<sub>2</sub> Trading Program unit; and

(3) Any purchaser of power from a Texas SO<sub>2</sub> Trading Program unit at the source or the Texas SO<sub>2</sub> Trading Program unit under a life-of-the-unit, firm power contractual arrangement.

*Permanently retired* means, with regard to a unit, a unit that is

unavailable for service and that the unit’s owners and operators do not expect to return to service in the future.

*Permitting authority* means “permitting authority” as defined in §§ 70.2 and 71.2 of this chapter.

*Receive or receipt of* means, when referring to the Administrator, to come into possession of a document, information, or correspondence (whether sent in hard copy or by authorized electronic transmission), as indicated in an official log, or by a notation made on the document, information, or correspondence, by the Administrator in the regular course of business.

*Recordation, record, or recorded* means, with regard to Texas SO<sub>2</sub> Trading Program allowances, the moving of Texas SO<sub>2</sub> Trading Program allowances by the Administrator into, out of, or between Allowance Management System accounts, for purposes of allocation, transfer, or deduction.

*Reference method* means any direct test method of sampling and analyzing for an air pollutant as specified in § 75.22 of this chapter.

*Replacement, replace, or replaced* means, with regard to a unit, the demolishing of a unit, or the permanent retirement and permanent disabling of a unit, and the construction of another unit (the replacement unit) to be used instead of the demolished or retired unit (the replaced unit).

*Serial number* means, for a Texas SO<sub>2</sub> Trading Program allowance, the unique identification number assigned to each Texas SO<sub>2</sub> Trading Program allowance by the Administrator.

*Source* means all buildings, structures, or installations located in one or more contiguous or adjacent properties under common control of the same person or persons. This definition does not change or otherwise affect the definition of “major source”, “stationary source”, or “source” as set forth and implemented in a title V operating permit program or any other program under the Clean Air Act.

*State* means Texas.

*Submit or serve* means to send or transmit a document, information, or correspondence to the person specified in accordance with the applicable regulation:

(1) In person;

(2) By United States Postal Service; or

(3) By other means of dispatch or transmission and delivery;

(4) Provided that compliance with any “submission” or “service” deadline shall be determined by the date of dispatch, transmission, or mailing and not the date of receipt.

*Texas SO<sub>2</sub> Trading Program* means an SO<sub>2</sub> air pollution control and emission reduction program established in accordance with this subpart and 40 CFR 52.2312 (including such a program that is revised in a SIP revision approved by the Administrator), or established in a SIP revision approved by the Administrator, as a means of addressing the State’s obligations with respect to BART, reasonable progress, and interstate visibility transport as those obligations relate to emissions of SO<sub>2</sub> from electricity generating units.

*Texas SO<sub>2</sub> Trading Program allowance* means a limited authorization issued and allocated by the Administrator under this subpart, or by a State or permitting authority under a SIP revision approved by the Administrator, to emit one ton of SO<sub>2</sub> during a control period of the specified calendar year for which the authorization is allocated or of any calendar year thereafter under the Texas SO<sub>2</sub> Trading Program.

*Texas SO<sub>2</sub> Trading Program allowance deduction or deduct Texas SO<sub>2</sub> Trading Program allowances* means the permanent withdrawal of Texas SO<sub>2</sub> Trading Program allowances by the Administrator from a compliance account (e.g., in order to account for compliance with the Texas SO<sub>2</sub> Trading Program emissions limitation).

*Texas SO<sub>2</sub> Trading Program allowances held or hold Texas SO<sub>2</sub> Trading Program allowances* means the Texas SO<sub>2</sub> Trading Program allowances treated as included in an Allowance Management System account as of a specified point in time because at that time they:

(1) Have been recorded by the Administrator in the account or transferred into the account by a correctly submitted, but not yet recorded, Texas SO<sub>2</sub> Trading Program allowance transfer in accordance with this subpart; and

(2) Have not been transferred out of the account by a correctly submitted, but not yet recorded, Texas SO<sub>2</sub> Trading Program allowance transfer in accordance with this subpart.

*Texas SO<sub>2</sub> Trading Program emissions limitation* means, for a Texas SO<sub>2</sub> Trading Program source, the tonnage of SO<sub>2</sub> emissions authorized in a control period by the Texas SO<sub>2</sub> Trading Program allowances available for deduction for the source under § 97.924(a) for such control period.

*Texas SO<sub>2</sub> Trading Program source* means a source that includes one or more Texas SO<sub>2</sub> Trading Program units.

*Texas SO<sub>2</sub> Trading Program unit* means a unit that is subject to the Texas SO<sub>2</sub> Trading Program under § 97.904.



*Unit* means a stationary, fossil-fuel-fired boiler, stationary, fossil-fuel-fired combustion turbine, or other stationary, fossil-fuel-fired combustion device. A unit that undergoes a physical change or is moved to a different location or source shall continue to be treated as the same unit. A unit (the replaced unit) that is replaced by another unit (the replacement unit) at the same or a different source shall continue to be treated as the same unit, and the replacement unit shall be treated as a separate unit.

*Unit operating day* means, with regard to a unit, a calendar day in which the unit combusts any fuel.

*Unit operating hour or hour of unit operation* means, with regard to a unit, an hour in which the unit combusts any fuel.

#### **§ 97.903 Measurements, abbreviations, and acronyms.**

Measurements, abbreviations, and acronyms used in this subpart are defined as follows:

BART—best available retrofit technology  
Btu—British thermal unit  
CO<sub>2</sub>—carbon dioxide  
CSAPR—Cross-State Air Pollution Rule  
H<sub>2</sub>O—water  
hr—hour  
lb—pound  
mmBtu—million Btu  
MWe—megawatt electrical  
NO<sub>x</sub>—nitrogen oxides  
O<sub>2</sub>—oxygen  
ppm—parts per million  
scfh—standard cubic feet per hour  
SIP—State implementation plan  
SO<sub>2</sub>—sulfur dioxide

#### **§ 97.904 Applicability.**

(a) Each of the units in Texas listed in the table in § 97.911(a)(1) shall be a Texas SO<sub>2</sub> Trading Program unit, and each source that includes one or more such units shall be a Texas SO<sub>2</sub> Trading Program source, subject to the requirements of this subpart.

(b) *Opt-in provisions.* (1) The provisions of paragraph (b) of this section apply to each unit in Texas that:

(i) Is listed in the table entitled “Unit Level Allocations under the CSAPR FIPs after Tolling,” EPA–HQ–OAR–2009–0491–5028, available at [www.regulations.gov](http://www.regulations.gov);

(ii) Is not a Texas SO<sub>2</sub> Trading Program unit under paragraph (a) of this section; and

(iii) Has not received a determination of non-applicability under 40 CFR 97.404(c), 97.504(c), 97.704(c), or 97.804(c).

(2) The designated representative of a unit described in paragraph (b)(1) of this

section may submit an opt-in application seeking authorization for the unit to participate in the Texas SO<sub>2</sub> Trading Program, provided that the unit has operated in the calendar year preceding submission of the opt-in application. Opt-in applications must be submitted in a format specified by the Administrator no later than October 1 of the year preceding the first control period for which authorization to participate in the Texas SO<sub>2</sub> Trading Program is sought.

(3) The Administrator shall review applications for opt-in units and respond in writing to the designated representative within 30 business days. The Administrator will authorize the unit to participate in the Texas SO<sub>2</sub> Trading Program if the provisions of paragraphs (b)(1) and (2) of this section are satisfied.

(4) Following submission of an opt-in application and authorization in accordance with paragraphs (b)(2) and (3) of this section, the unit shall be a Texas SO<sub>2</sub> Trading Program unit, and the source that includes the unit shall be a Texas SO<sub>2</sub> Trading Program source, subject to the requirements of this subpart starting on the next January 1. The unit shall remain subject to the requirements of this subpart for the life of the source, with the exception for retired units under § 97.905.

(5) Opt-in units shall receive allowance allocations as provided in § 97.911(b). These allocations shall be recorded into a source's compliance account per the recordation schedule in § 97.921.

(6) The Administrator will maintain a publicly accessible record of all units that become Texas SO<sub>2</sub> Trading Program units under paragraph (b) of this section and of all allocations of allowances to such units. Such public access may be provided through posting of information on a Web site.

#### **§ 97.905 Retired unit exemptions.**

(a)(1) Any Texas SO<sub>2</sub> Trading Program unit that is permanently retired shall be exempt from § 97.906(b) and (c)(1), § 97.924, and §§ 97.930 through 97.935.

(2) The exemption under paragraph (a)(1) of this section shall become effective the day on which the Texas SO<sub>2</sub> Trading Program unit is permanently retired. Within 30 days of the unit's permanent retirement, the designated representative shall submit a statement to the Administrator. The statement shall state, in a format prescribed by the Administrator, that the unit was permanently retired on a specified date and will comply with the requirements of paragraph (b) of this section.

(b) *Special provisions.* (1) A unit exempt under paragraph (a) of this section shall not emit any SO<sub>2</sub>, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under paragraph (a) of this section shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under paragraph (a) of this section shall comply with the requirements of the Texas SO<sub>2</sub> Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under paragraph (a) of this section shall lose its exemption on the first date on which the unit resumes operation. A retired unit that resumes operation will not receive an allowance allocation under § 97.911. The unit may receive allowances from the Supplemental Allowance Pool pursuant to § 97.912. All other provisions of Subpart FFFFFF regarding monitoring, reporting, recordkeeping and compliance will apply on the first date on which the unit resumes operation.

#### **§ 97.906 General provisions.**

(a) *Designated representative requirements.* The owners and operators shall comply with the requirement to have a designated representative, and may have an alternate designated representative, in accordance with §§ 97.913 through 97.918.

(b) *Emissions monitoring, reporting, and recordkeeping requirements.* (1) The owners and operators, and the designated representative, of each Texas SO<sub>2</sub> Trading Program source and each Texas SO<sub>2</sub> Trading Program unit at the source shall comply with the monitoring, reporting, and recordkeeping requirements of §§ 97.930 through 97.935.

(2) The emissions data determined in accordance with §§ 97.930 through 97.935 shall be used to calculate allocations of Texas SO<sub>2</sub> Trading Program allowances under § 97.912 and to determine compliance with the Texas SO<sub>2</sub> Trading Program emissions limitation under paragraph (c) of this

section, provided that, for each monitoring location from which mass emissions are reported, the mass emissions amount used in calculating such allocations and determining such compliance shall be the mass emissions amount for the monitoring location determined in accordance with §§ 97.930 through 97.935 and rounded to the nearest ton, with any fraction of a ton less than 0.50 being deemed to be zero and any fraction of a ton greater than or equal to 0.50 being deemed to be a whole ton.

(c) *SO<sub>2</sub> emissions requirements*—(1) *Texas SO<sub>2</sub> Trading Program emissions limitation.* (i) As of the allowance transfer deadline for a control period in a given year, the owners and operators of each Texas SO<sub>2</sub> Trading Program source and each Texas SO<sub>2</sub> Trading Program unit at the source shall hold, in the source's compliance account, Texas SO<sub>2</sub> Trading Program allowances available for deduction for such control period under § 97.924(a) in an amount not less than the tons of total SO<sub>2</sub> emissions for such control period from all Texas SO<sub>2</sub> Trading Program units at the source.

(ii) If total SO<sub>2</sub> emissions during a control period in a given year from the Texas SO<sub>2</sub> Trading Program units at a Texas SO<sub>2</sub> Trading Program source are in excess of the Texas SO<sub>2</sub> Trading Program emissions limitation set forth in paragraph (c)(1)(i) of this section, then:

(A) The owners and operators of the source and each Texas SO<sub>2</sub> Trading Program unit at the source shall hold the Texas SO<sub>2</sub> Trading Program allowances required for deduction under § 97.924(d); and

(B) The owners and operators of the source and each Texas SO<sub>2</sub> Trading Program unit at the source shall pay any fine, penalty, or assessment or comply with any other remedy imposed, for the same violations, under the Clean Air Act, and each ton of such excess emissions and each day of such control period shall constitute a separate violation of this subpart and the Clean Air Act.

(2) *Compliance periods.* A Texas SO<sub>2</sub> Trading Program unit shall be subject to the requirements under paragraph (c)(1) of this section for the control period starting on the later of January 1, 2019 or the deadline for meeting the unit's monitor certification requirements under § 97.930(b) and for each control period thereafter.

(3) *Vintage of Texas SO<sub>2</sub> Trading Program allowances held for compliance.* (i) A Texas SO<sub>2</sub> Trading Program allowance held for compliance with the requirements under paragraph

(c)(1)(i) of this section for a control period in a given year must be a Texas SO<sub>2</sub> Trading Program allowance that was allocated for such control period or a control period in a prior year.

(ii) A Texas SO<sub>2</sub> Trading Program allowance held for compliance with the requirements under paragraph (c)(1)(ii)(A) of this section for a control period in a given year must be a Texas SO<sub>2</sub> Trading Program allowance that was allocated for a control period in a prior year or the control period in the given year or in the immediately following year.

(4) *Allowance Management System requirements.* Each Texas SO<sub>2</sub> Trading Program allowance shall be held in, deducted from, or transferred into, out of, or between Allowance Management System accounts in accordance with this subpart.

(5) *Limited authorization.* A Texas SO<sub>2</sub> Trading Program allowance is a limited authorization to emit one ton of SO<sub>2</sub> during the control period in one year. Such authorization is limited in its use and duration as follows:

(i) Such authorization shall only be used in accordance with the Texas SO<sub>2</sub> Trading Program; and

(ii) Notwithstanding any other provision of this subpart, the Administrator has the authority to terminate or limit the use and duration of such authorization to the extent the Administrator determines is necessary or appropriate to implement any provision of the Clean Air Act.

(6) *Property right.* A Texas SO<sub>2</sub> Trading Program allowance does not constitute a property right.

(d) *Title V permit requirements.* (1) No title V permit revision shall be required for any allocation, holding, deduction, or transfer of Texas SO<sub>2</sub> Trading Program allowances in accordance with this subpart.

(2) A description of whether a unit is required to monitor and report SO<sub>2</sub> emissions using a continuous emission monitoring system (under subpart B of part 75 of this chapter), an excepted monitoring system (under appendices D and E to part 75 of this chapter), a low mass emissions excepted monitoring methodology (under § 75.19 of this chapter), or an alternative monitoring system (under subpart E of part 75 of this chapter) in accordance with §§ 97.930 through 97.935 may be added to, or changed in, a title V permit using minor permit modification procedures in accordance with §§ 70.7(e)(2) and 71.7(e)(1) of this chapter, provided that the requirements applicable to the described monitoring and reporting (as added or changed, respectively) are already incorporated in such permit.

This paragraph explicitly provides that the addition of, or change to, a unit's description as described in the prior sentence is eligible for minor permit modification procedures in accordance with §§ 70.7(e)(2)(i)(B) and 71.7(e)(1)(i)(B) of this chapter.

(e) *Additional recordkeeping and reporting requirements.* (1) Unless otherwise provided, the owners and operators of each Texas SO<sub>2</sub> Trading Program source and each Texas SO<sub>2</sub> Trading Program unit at the source shall keep on site at the source each of the following documents (in hardcopy or electronic format) for a period of 5 years from the date the document is created. This period may be extended for cause, at any time before the end of 5 years, in writing by the Administrator.

(i) The certificate of representation under § 97.916 for the designated representative for the source and each Texas SO<sub>2</sub> Trading Program unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such certificate of representation and documents are superseded because of the submission of a new certificate of representation under § 97.916 changing the designated representative.

(ii) All emissions monitoring information, in accordance with this subpart.

(iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under, or to demonstrate compliance with the requirements of, the Texas SO<sub>2</sub> Trading Program.

(2) The designated representative of a Texas SO<sub>2</sub> Trading Program source and each Texas SO<sub>2</sub> Trading Program unit at the source shall make all submissions required under the Texas SO<sub>2</sub> Trading Program, except as provided in § 97.918. This requirement does not change, create an exemption from, or otherwise affect the responsible official submission requirements under a title V operating permit program in parts 70 and 71 of this chapter.

(f) *Liability.* (1) Any provision of the Texas SO<sub>2</sub> Trading Program that applies to a Texas SO<sub>2</sub> Trading Program source or the designated representative of a Texas SO<sub>2</sub> Trading Program source shall also apply to the owners and operators of such source and of the Texas SO<sub>2</sub> Trading Program units at the source.

(2) Any provision of the Texas SO<sub>2</sub> Trading Program that applies to a Texas SO<sub>2</sub> Trading Program unit or the designated representative of a Texas SO<sub>2</sub>

Trading Program unit shall also apply to the owners and operators of such unit.

(g) *Effect on other authorities.* No provision of the Texas SO<sub>2</sub> Trading Program or exemption under § 97.905 shall be construed as exempting or excluding the owners and operators, and the designated representative, of a Texas SO<sub>2</sub> Trading Program source or Texas SO<sub>2</sub> Trading Program unit from compliance with any other provision of the applicable, approved State implementation plan, a federally enforceable permit, or the Clean Air Act.

**§ 97.907 Computation of time.**

(a) Unless otherwise stated, any time period scheduled, under the Texas SO<sub>2</sub> Trading Program, to begin on the occurrence of an act or event shall begin on the day the act or event occurs.

(b) Unless otherwise stated, any time period scheduled, under the Texas SO<sub>2</sub>

Trading Program, to begin before the occurrence of an act or event shall be computed so that the period ends the day before the act or event occurs.

(c) Unless otherwise stated, if the final day of any time period, under the Texas SO<sub>2</sub> Trading Program, is not a business day, the time period shall be extended to the next business day.

**§ 97.908 Administrative appeal procedures.**

The administrative appeal procedures for decisions of the Administrator under the Texas SO<sub>2</sub> Trading Program are set forth in part 78 of this chapter.

**§ 97.909 [Reserved]**

**§ 97.910 Texas SO<sub>2</sub> Trading Program and Supplemental Allowance Pool Budgets.**

(a) The budgets for the Texas SO<sub>2</sub> Trading Program and Supplemental

Allowance Pool for the control periods in 2019 and thereafter are as follows:

(1) The Texas SO<sub>2</sub> Trading Program budget for the control period in 2019 and each future control period is 238,393 tons.

(2) The Texas SO<sub>2</sub> Trading Program Supplemental Allowance Pool budget for the control period in 2019 and each future control period is 10,000 tons.

(b) [reserved]

**§ 97.911 Texas SO<sub>2</sub> Trading Program allowance allocations.**

(a)(1) Except as provided in paragraph (a)(2) of this section, Texas SO<sub>2</sub> Trading Program allowances from the Texas SO<sub>2</sub> Trading Program budget will be allocated, for the control periods in 2019 and each year thereafter, as provided in the following table:

Texas SO <sub>2</sub> trading program units	ORIS code	Texas SO <sub>2</sub> trading program allocation
Big Brown Unit 1 .....	3497	8,473
Big Brown Unit 2 .....	3497	8,559
Coletto Creek Unit 1 .....	6178	9,057
Fayette/Sam Seymour Unit 1 .....	6179	7,979
Fayette/Sam Seymour Unit 2 .....	6179	8,019
Graham Unit 2 .....	3490	226
H W Pirkey Power Plant Unit 1 .....	7902	8,882
Harrington Unit 061B .....	6193	5,361
Harrington Unit 062B .....	6193	5,255
Harrington Unit 063B .....	6193	5,055
JT Deely Unit 1 .....	6181	6,170
JT Deely Unit 2 .....	6181	6,082
Limestone Unit 1 .....	298	12,081
Limestone Unit 2 .....	298	12,293
Martin Lake Unit 1 .....	6146	12,024
Martin Lake Unit 2 .....	6146	11,580
Martin Lake Unit 3 .....	6146	12,236
Monticello Unit 1 .....	6147	8,598
Monticello Unit 2 .....	6147	8,795
Monticello Unit 3 .....	6147	12,216
Newman Unit 2 .....	3456	1
Newman Unit 3 .....	3456	1
Newman Unit 4 .....	3456	2
Sandow Unit 4 .....	6648	8,370
Sommers Unit 1 .....	3611	55
Sommers Unit 2 .....	3611	7
Stryker Unit ST2 .....	3504	145
Tolk Station Unit 171B .....	6194	6,900
Tolk Station Unit 172B .....	6194	7,062
WA Parish Unit WAP4 .....	3470	3
WA Parish Unit WAP5 .....	3470	9,580
WA Parish Unit WAP6 .....	3470	8,900
WA Parish Unit WAP7 .....	3470	7,653
Welsh Power Plant Unit 1 .....	6139	6,496
Welsh Power Plant Unit 2 .....	6139	7,050
Welsh Power Plant Unit 3 .....	6139	7,208
Wilkes Unit 1 .....	3478	14
Wilkes Unit 2 .....	3478	2
Wilkes Unit 3 .....	3478	3

(2) Notwithstanding paragraph (a)(1) of this section, if a unit provided an allocation pursuant to the table in

paragraph (a)(1) of this section does not operate, starting after 2018, during the control period in two consecutive years,

such unit will not be allocated the Texas SO<sub>2</sub> Trading Program allowances provided in paragraph (a)(1) of this



section for the unit for the control periods in the fifth year after the first such year and in each year after that fifth year. All Texas SO<sub>2</sub> Trading Program allowances that would otherwise have been allocated to such unit will be allocated under the Texas Supplemental Allowance Pool under 40 CFR 97.912.

(b)(1) A unit that becomes a Texas SO<sub>2</sub> Trading Program unit pursuant to § 97.904(b) will receive an allocation of Texas SO<sub>2</sub> Trading Program allowances equal to the SO<sub>2</sub> allocation shown for the unit in the table referenced in § 97.404(b)(1) (ignoring the years shown in the column headings in the table) for the control period in each year while the unit is a Texas SO<sub>2</sub> Trading Program unit, provided that the unit has operated during the calendar year immediately preceding the year of each such control period.

(2) If a unit that becomes a Texas SO<sub>2</sub> Trading Program unit pursuant to § 97.904(b) does not operate during a given calendar year, no Texas SO<sub>2</sub> Trading Program allowances will be allocated to that unit for the control period in the following year or any subsequent year, nor will any allowances that would otherwise have been allocated to such unit under paragraph (b)(1) of this section be made available for use by any other unit under the Texas Supplemental Allowance Pool or otherwise.

(c) *Units incorrectly allocated Texas SO<sub>2</sub> Trading Program allowances.* (1) For each control period in 2019 and thereafter, if the Administrator determines that Texas SO<sub>2</sub> Trading Program allowances were incorrectly allocated under paragraph (a) or (b) of this section, or under a provision of a SIP revision approved by the Administrator, then the Administrator will notify the designated representative of the recipient and will act in accordance with the procedures set forth in paragraphs (c)(2) through (5) of this section:

(2) Except as provided in paragraph (c)(3) or (4) of this section, the Administrator will not record such Texas SO<sub>2</sub> Trading Program allowances under § 97.921.

(3) If the Administrator already recorded such Texas SO<sub>2</sub> Trading Program allowances under § 97.921 and if the Administrator makes the determination under paragraph (c)(1) of this section before making deductions for the source that includes such recipient under § 97.924(b) for such control period, then the Administrator will deduct from the account in which such Texas SO<sub>2</sub> Trading Program allowances were recorded an amount of

Texas SO<sub>2</sub> Trading Program allowances allocated for the same or a prior control period equal to the amount of such already recorded Texas SO<sub>2</sub> Trading Program allowances. The authorized account representative shall ensure that there are sufficient Texas SO<sub>2</sub> Trading Program allowances in such account for completion of the deduction.

(4) If the Administrator already recorded such Texas SO<sub>2</sub> Trading Program allowances under § 97.921 and if the Administrator makes the determination under paragraph (c)(1) of this section after making deductions for the source that includes such recipient under § 97.924(b) for such control period, then the Administrator will not make any deduction to take account of such already recorded Texas SO<sub>2</sub> Trading Program allowances.

(5) With regard to the Texas SO<sub>2</sub> Trading Program allowances that are not recorded, or that are deducted as an incorrect allocation, in accordance with paragraphs (c)(2) and (3) of this section for a recipient under paragraph (a) of this section, the Administrator will transfer such Texas SO<sub>2</sub> Trading Program allowances to the Texas Supplemental Allowance Pool under 40 CFR 97.912. With regard to the Texas SO<sub>2</sub> Trading Program allowances that are not recorded, or that are deducted as an incorrect allocation, in accordance with paragraphs (c)(2) and (3) of this section for a recipient under paragraph (b) of this section, the Administrator will retire such Texas SO<sub>2</sub> Trading Program allowances.

#### **§ 97.912 Texas SO<sub>2</sub> Trading Program Supplemental Allowance Pool.**

(a) For each control period in 2019 and thereafter, the Administrator will allocate Texas SO<sub>2</sub> Trading Program allowances from the Texas SO<sub>2</sub> Trading Program Supplemental Allowance Pool as follows:

(1) No later than February 15, 2020 and each subsequent February 15, the Administrator will review all the quarterly SO<sub>2</sub> emissions reports provided under § 97.934(d) for each Texas SO<sub>2</sub> Trading Program unit for the previous control period. The Administrator will identify each Texas SO<sub>2</sub> Trading Program source for which the total amount of emissions reported for the units at the source for that control period exceeds the total amount of allowances allocated to the units at the source for that control period under § 97.911.

(2) For each Texas SO<sub>2</sub> Trading Program source identified under paragraph (a)(1) of this section, the Administrator will calculate the amount by which the total amount of reported

emissions for that control period exceeds the total amount of allowances allocated for that control period under § 97.911.

(3)(i) For Coletto Creek (ORIS 6178), if the source is identified under paragraph (a)(1) of this section, the Administrator will allocate and record in the source's compliance account an amount of allowances from the Supplemental Allowance Pool equal to the lesser of the amount calculated for the source under paragraph (a)(2) of this section or the total number of allowances in the Supplemental Allowance Pool available for allocation under paragraph (b) of this section.

(ii) For any Texas SO<sub>2</sub> Trading Program sources identified under paragraph (a)(1) of this section other than Coletto Creek (ORIS 6178), the Administrator will allocate and record allowances from the Supplemental Allowance Pool as follows:

(A) If the total for all such sources of the amounts calculated under paragraph (a)(2) of this section is less than or equal to the total number of allowances in the Supplemental Allowance Pool available for allocation under paragraph (b) of this section that remain after any allocation under paragraph (a)(3)(i) of this section, then the Administrator will allocate and record in the compliance account for each such source an amount of allowances from the Supplemental Allowance Pool equal to the amount calculated for the source under paragraph (a)(2) of this section.

(B) If the total for all such sources of the amounts calculated under paragraph (a)(2) of this section is greater than the total number of allowances in the Supplemental Allowance Pool available for allocation under paragraph (b) of this section that remain after any allocation under paragraph (a)(3)(i) of this section, then the Administrator will calculate each such source's allocation of allowances from the Supplemental Allowance Pool by dividing the amount calculated under paragraph (a)(2) of this section for the source by the sum of the amounts calculated under paragraph (a)(2) of this section for all such sources, then multiplying by the number of allowances in the Supplemental Allowance Pool available for allocation under paragraph (b) of this section that remain after any allocation under paragraph (a)(3)(i) of this section and rounding to the nearest allowance. The Administrator will then record the calculated allocations of allowances in the applicable compliance accounts.

(iii) Any unallocated allowances remaining in the Supplemental Allowance Pool after the allocations determined under paragraphs (a)(3)(i)

and (ii) of this section will be maintained in the Supplemental Allowance Pool. These allowances will be available for allocation by the Administrator in subsequent control periods to the extent consistent with paragraph (b) of this section.

(4) The Administrator will notify the designated representative of each Texas SO<sub>2</sub> Trading Program source when the allowances from the Supplemental Allowance Pool have been recorded.

(b) The total amount of allowances in the Texas SO<sub>2</sub> Trading Program Supplemental Allowance Pool available for allocation for a control period is equal to the sum of the Texas SO<sub>2</sub> Trading Program Supplemental Allowance Pool budget under § 97.910(a)(2), any allowances from retired units pursuant to § 97.911(a)(2) and from corrections pursuant to § 97.911(c)(5), and any allowances maintained in the Supplemental Allowance Pool pursuant to paragraph (a)(3)(iii) of this section, but cannot exceed by more than 44,711 tons the sum of the budget provided under § 97.910(a)(2) and any portion of the budget provided under § 97.910(a)(1) not otherwise allocated for that control period under § 97.911(a)(1). If the number of allowances in the Supplemental Allowance Pool exceeds this level then the Administrator may only allocate allowances up to this level for the control period.

**§ 97.913 Authorization of designated representative and alternate designated representative.**

(a) Except as provided under § 97.915, each Texas SO<sub>2</sub> Trading Program source, including all Texas SO<sub>2</sub> Trading Program units at the source, shall have one and only one designated representative, with regard to all matters under the Texas SO<sub>2</sub> Trading Program.

(1) The designated representative shall be selected by an agreement binding on the owners and operators of the source and all Texas SO<sub>2</sub> Trading Program units at the source and shall act in accordance with the certification statement in § 97.916(a)(4)(iii).

(2) Upon and after receipt by the Administrator of a complete certificate of representation under § 97.916:

(i) The designated representative shall be authorized and shall represent and, by his or her representations, actions, inactions, or submissions, legally bind each owner and operator of the source and each Texas SO<sub>2</sub> Trading Program unit at the source in all matters pertaining to the Texas SO<sub>2</sub> Trading Program, notwithstanding any agreement between the designated

representative and such owners and operators; and

(ii) The owners and operators of the source and each Texas SO<sub>2</sub> Trading Program unit at the source shall be bound by any decision or order issued to the designated representative by the Administrator regarding the source or any such unit.

(b) Except as provided under § 97.915, each Texas SO<sub>2</sub> Trading Program source may have one and only one alternate designated representative, who may act on behalf of the designated representative. The agreement by which the alternate designated representative is selected shall include a procedure for authorizing the alternate designated representative to act in lieu of the designated representative.

(1) The alternate designated representative shall be selected by an agreement binding on the owners and operators of the source and all Texas SO<sub>2</sub> Trading Program units at the source and shall act in accordance with the certification statement in § 97.916(a)(4)(iii).

(2) Upon and after receipt by the Administrator of a complete certificate of representation under § 97.916,

(i) The alternate designated representative shall be authorized;

(ii) Any representation, action, inaction, or submission by the alternate designated representative shall be deemed to be a representation, action, inaction, or submission by the designated representative; and

(iii) The owners and operators of the source and each Texas SO<sub>2</sub> Trading Program unit at the source shall be bound by any decision or order issued to the alternate designated representative by the Administrator regarding the source or any such unit.

(c) Except in this section, § 97.902, and §§ 97.914 through 97.918, whenever the term “designated representative” is used in this subpart, the term shall be construed to include the designated representative or any alternate designated representative.

**§ 97.914 Responsibilities of designated representative and alternate designated representative.**

(a) Except as provided under § 97.918 concerning delegation of authority to make submissions, each submission under the Texas SO<sub>2</sub> Trading Program shall be made, signed, and certified by the designated representative or alternate designated representative for each Texas SO<sub>2</sub> Trading Program source and Texas SO<sub>2</sub> Trading Program unit for which the submission is made. Each such submission shall include the following certification statement by the

designated representative or alternate designated representative: “I am authorized to make this submission on behalf of the owners and operators of the source or units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.”

(b) The Administrator will accept or act on a submission made for a Texas SO<sub>2</sub> Trading Program source or a Texas SO<sub>2</sub> Trading Program unit only if the submission has been made, signed, and certified in accordance with paragraph (a) of this section and § 97.918.

**§ 97.915 Changing designated representative and alternate designated representative; changes in owners and operators; changes in units at the source.**

(a) *Changing designated representative.* The designated representative may be changed at any time upon receipt by the Administrator of a superseding complete certificate of representation under § 97.916. Notwithstanding any such change, all representations, actions, inactions, and submissions by the previous designated representative before the time and date when the Administrator receives the superseding certificate of representation shall be binding on the new designated representative and the owners and operators of the Texas SO<sub>2</sub> Trading Program source and the Texas SO<sub>2</sub> Trading Program units at the source.

(b) *Changing alternate designated representative.* The alternate designated representative may be changed at any time upon receipt by the Administrator of a superseding complete certificate of representation under § 97.916. Notwithstanding any such change, all representations, actions, inactions, and submissions by the previous alternate designated representative before the time and date when the Administrator receives the superseding certificate of representation shall be binding on the new alternate designated representative, the designated representative, and the owners and operators of the Texas SO<sub>2</sub> Trading Program source and the Texas

SO<sub>2</sub> Trading Program units at the source.

(c) *Changes in owners and operators.*

(1) In the event an owner or operator of a Texas SO<sub>2</sub> Trading Program source or a Texas SO<sub>2</sub> Trading Program unit at the source is not included in the list of owners and operators in the certificate of representation under § 97.916, such owner or operator shall be deemed to be subject to and bound by the certificate of representation, the representations, actions, inactions, and submissions of the designated representative and any alternate designated representative of the source or unit, and the decisions and orders of the Administrator, as if the owner or operator were included in such list.

(2) Within 30 days after any change in the owners and operators of a Texas SO<sub>2</sub> Trading Program source or a Texas SO<sub>2</sub> Trading Program unit at the source, including the addition or removal of an owner or operator, the designated representative or any alternate designated representative shall submit a revision to the certificate of representation under § 97.916 amending the list of owners and operators to reflect the change.

(d) *Changes in units at the source.* Within 30 days of any change in which units are located at a Texas SO<sub>2</sub> Trading Program source (including the addition (see § 97.904(b)) or removal of a unit), the designated representative or any alternate designated representative shall submit a certificate of representation under § 97.916 amending the list of units to reflect the change.

(1) If the change is the addition of a unit (see § 97.904(b)) that operated (other than for purposes of testing by the manufacturer before initial installation) before being located at the source, then the certificate of representation shall identify, in a format prescribed by the Administrator, the entity from whom the unit was purchased or otherwise obtained (including name, address, telephone number, and facsimile number (if any)), the date on which the unit was purchased or otherwise obtained, and the date on which the unit became located at the source.

(2) If the change is the removal of a unit, then the certificate of representation shall identify, in a format prescribed by the Administrator, the entity to which the unit was sold or that otherwise obtained the unit (including name, address, telephone number, and facsimile number (if any)), the date on which the unit was sold or otherwise obtained, and the date on which the unit became no longer located at the source.

**§ 97.916 Certificate of representation.**

(a) A complete certificate of representation for a designated representative or an alternate designated representative shall include the following elements in a format prescribed by the Administrator:

(1) Identification of the Texas SO<sub>2</sub> Trading Program source, and each Texas SO<sub>2</sub> Trading Program unit at the source, for which the certificate of representation is submitted, including source name, source category and NAICS code (or, in the absence of a NAICS code, an equivalent code), State, plant code, county, latitude and longitude, unit identification number and type, identification number and nameplate capacity (in MWe, rounded to the nearest tenth) of each generator served by each such unit, and actual date of commencement of commercial operation, and a statement of whether such source is located in Indian country.

(2) The name, address, email address (if any), telephone number, and facsimile transmission number (if any) of the designated representative and any alternate designated representative.

(3) A list of the owners and operators of the Texas SO<sub>2</sub> Trading Program source and of each Texas SO<sub>2</sub> Trading Program unit at the source.

(4) The following certification statements by the designated representative and any alternate designated representative—

(i) “I certify that I was selected as the designated representative or alternate designated representative, as applicable, by an agreement binding on the owners and operators of the source and each Texas SO<sub>2</sub> Trading Program unit at the source.”

(ii) “I certify that I have all the necessary authority to carry out my duties and responsibilities under the Texas SO<sub>2</sub> Trading Program on behalf of the owners and operators of the source and of each Texas SO<sub>2</sub> Trading Program unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions and by any decision or order issued to me by the Administrator regarding the source or unit.”

(iii) “Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a Texas SO<sub>2</sub> Trading Program unit, or where a utility or industrial customer purchases power from a Texas SO<sub>2</sub> Trading Program unit under a life-of-the-unit, firm power contractual arrangement, I certify that: I have given a written notice of my selection as the ‘designated representative’ or ‘alternate designated

representative’, as applicable, and of the agreement by which I was selected to each owner and operator of the source and of each Texas SO<sub>2</sub> Trading Program unit at the source; and Texas SO<sub>2</sub> Trading Program allowances and proceeds of transactions involving Texas SO<sub>2</sub> Trading Program allowances will be deemed to be held or distributed in proportion to each holder’s legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of Texas SO<sub>2</sub> Trading Program allowances by contract, Texas SO<sub>2</sub> Trading Program allowances and proceeds of transactions involving Texas SO<sub>2</sub> Trading Program allowances will be deemed to be held or distributed in accordance with the contract.”

(5) The signature of the designated representative and any alternate designated representative and the dates signed.

(b) Unless otherwise required by the Administrator, documents of agreement referred to in the certificate of representation shall not be submitted to the Administrator. The Administrator shall not be under any obligation to review or evaluate the sufficiency of such documents, if submitted.

**§ 97.917 Objections concerning designated representative and alternate designated representative.**

(a) Once a complete certificate of representation under § 97.916 has been submitted and received, the Administrator will rely on the certificate of representation unless and until a superseding complete certificate of representation under § 97.916 is received by the Administrator.

(b) Except as provided in paragraph (a) of this section, no objection or other communication submitted to the Administrator concerning the authorization, or any representation, action, inaction, or submission, of a designated representative or alternate designated representative shall affect any representation, action, inaction, or submission of the designated representative or alternate designated representative or the finality of any decision or order by the Administrator under the Texas SO<sub>2</sub> Trading Program.

(c) The Administrator will not adjudicate any private legal dispute concerning the authorization or any representation, action, inaction, or submission of any designated representative or alternate designated representative, including private legal disputes concerning the proceeds of Texas SO<sub>2</sub> Trading Program allowance transfers.



**§ 97.918 Delegation by designated representative and alternate designated representative.**

(a) A designated representative may delegate, to one or more natural persons, his or her authority to make an electronic submission to the Administrator provided for or required under this subpart.

(b) An alternate designated representative may delegate, to one or more natural persons, his or her authority to make an electronic submission to the Administrator provided for or required under this subpart.

(c) In order to delegate authority to a natural person to make an electronic submission to the Administrator in accordance with paragraph (a) or (b) of this section, the designated representative or alternate designated representative, as appropriate, must submit to the Administrator a notice of delegation, in a format prescribed by the Administrator, that includes the following elements:

(1) The name, address, email address, telephone number, and facsimile transmission number (if any) of such designated representative or alternate designated representative;

(2) The name, address, email address, telephone number, and facsimile transmission number (if any) of each such natural person (referred to in this section as an “agent”);

(3) For each such natural person, a list of the type or types of electronic submissions under paragraph (a) or (b) of this section for which authority is delegated to him or her; and

(4) The following certification statements by such designated representative or alternate designated representative:

(i) “I agree that any electronic submission to the Administrator that is made by an agent identified in this notice of delegation and of a type listed for such agent in this notice of delegation and that is made when I am a designated representative or alternate designated representative, as appropriate, and before this notice of delegation is superseded by another notice of delegation under 40 CFR 97.918(d) shall be deemed to be an electronic submission by me.”

(ii) “Until this notice of delegation is superseded by another notice of delegation under 40 CFR 97.918(d), I agree to maintain an email account and to notify the Administrator immediately of any change in my email address unless all delegation of authority by me under 40 CFR 97.918 is terminated.”

(d) A notice of delegation submitted under paragraph (c) of this section shall

be effective, with regard to the designated representative or alternate designated representative identified in such notice, upon receipt of such notice by the Administrator and until receipt by the Administrator of a superseding notice of delegation submitted by such designated representative or alternate designated representative, as appropriate. The superseding notice of delegation may replace any previously identified agent, add a new agent, or eliminate entirely any delegation of authority.

(e) Any electronic submission covered by the certification in paragraph (c)(4)(i) of this section and made in accordance with a notice of delegation effective under paragraph (d) of this section shall be deemed to be an electronic submission by the designated representative or alternate designated representative submitting such notice of delegation.

**§ 97.919 [Reserved]****§ 97.920 Establishment of compliance accounts and general accounts.**

(a) *Compliance accounts.* Upon receipt of a complete certificate of representation under § 97.916, the Administrator will establish a compliance account for the Texas SO<sub>2</sub> Trading Program source for which the certificate of representation was submitted, unless the source already has a compliance account. The designated representative and any alternate designated representative of the source shall be the authorized account representative and the alternate authorized account representative respectively of the compliance account.

(b) *General accounts—(1) Application for general account.* (i) Any person may apply to open a general account, for the purpose of holding and transferring Texas SO<sub>2</sub> Trading Program allowances, by submitting to the Administrator a complete application for a general account. Such application shall designate one and only one authorized account representative and may designate one and only one alternate authorized account representative who may act on behalf of the authorized account representative.

(A) The authorized account representative and alternate authorized account representative shall be selected by an agreement binding on the persons who have an ownership interest with respect to Texas SO<sub>2</sub> Trading Program allowances held in the general account.

(B) The agreement by which the alternate authorized account representative is selected shall include a procedure for authorizing the alternate

authorized account representative to act in lieu of the authorized account representative.

(ii) A complete application for a general account shall include the following elements in a format prescribed by the Administrator:

(A) Name, mailing address, email address (if any), telephone number, and facsimile transmission number (if any) of the authorized account representative and any alternate authorized account representative;

(B) An identifying name for the general account;

(C) A list of all persons subject to a binding agreement for the authorized account representative and any alternate authorized account representative to represent their ownership interest with respect to the Texas SO<sub>2</sub> Trading Program allowances held in the general account;

(D) The following certification statement by the authorized account representative and any alternate authorized account representative: “I certify that I was selected as the authorized account representative or the alternate authorized account representative, as applicable, by an agreement that is binding on all persons who have an ownership interest with respect to Texas SO<sub>2</sub> Trading Program allowances held in the general account. I certify that I have all the necessary authority to carry out my duties and responsibilities under the Texas SO<sub>2</sub> Trading Program on behalf of such persons and that each such person shall be fully bound by my representations, actions, inactions, or submissions and by any decision or order issued to me by the Administrator regarding the general account.”

(E) The signature of the authorized account representative and any alternate authorized account representative and the dates signed.

(iii) Unless otherwise required by the Administrator, documents of agreement referred to in the application for a general account shall not be submitted to the Administrator. The Administrator shall not be under any obligation to review or evaluate the sufficiency of such documents, if submitted.

(2) *Authorization of authorized account representative and alternate authorized account representative.* (i) Upon receipt by the Administrator of a complete application for a general account under paragraph (b)(1) of this section, the Administrator will establish a general account for the person or persons for whom the application is submitted, and upon and after such receipt by the Administrator:

(A) The authorized account representative of the general account shall be authorized and shall represent and, by his or her representations, actions, inactions, or submissions, legally bind each person who has an ownership interest with respect to Texas SO<sub>2</sub> Trading Program allowances held in the general account in all matters pertaining to the Texas SO<sub>2</sub> Trading Program, notwithstanding any agreement between the authorized account representative and such person.

(B) Any alternate authorized account representative shall be authorized, and any representation, action, inaction, or submission by any alternate authorized account representative shall be deemed to be a representation, action, inaction, or submission by the authorized account representative.

(C) Each person who has an ownership interest with respect to Texas SO<sub>2</sub> Trading Program allowances held in the general account shall be bound by any decision or order issued to the authorized account representative or alternate authorized account representative by the Administrator regarding the general account.

(ii) Except as provided in paragraph (b)(5) of this section concerning delegation of authority to make submissions, each submission concerning the general account shall be made, signed, and certified by the authorized account representative or any alternate authorized account representative for the persons having an ownership interest with respect to Texas SO<sub>2</sub> Trading Program allowances held in the general account. Each such submission shall include the following certification statement by the authorized account representative or any alternate authorized account representative: "I am authorized to make this submission on behalf of the persons having an ownership interest with respect to the Texas SO<sub>2</sub> Trading Program allowances held in the general account. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."

(iii) Except in this section, whenever the term "authorized account

representative" is used in this subpart, the term shall be construed to include the authorized account representative or any alternate authorized account representative.

(3) *Changing authorized account representative and alternate authorized account representative; changes in persons with ownership interest.* (i) The authorized account representative of a general account may be changed at any time upon receipt by the Administrator of a superseding complete application for a general account under paragraph (b)(1) of this section. Notwithstanding any such change, all representations, actions, inactions, and submissions by the previous authorized account representative before the time and date when the Administrator receives the superseding application for a general account shall be binding on the new authorized account representative and the persons with an ownership interest with respect to the Texas SO<sub>2</sub> Trading Program allowances in the general account.

(ii) The alternate authorized account representative of a general account may be changed at any time upon receipt by the Administrator of a superseding complete application for a general account under paragraph (b)(1) of this section. Notwithstanding any such change, all representations, actions, inactions, and submissions by the previous alternate authorized account representative before the time and date when the Administrator receives the superseding application for a general account shall be binding on the new alternate authorized account representative, the authorized account representative, and the persons with an ownership interest with respect to the Texas SO<sub>2</sub> Trading Program allowances in the general account.

(iii)(A) In the event a person having an ownership interest with respect to Texas SO<sub>2</sub> Trading Program allowances in the general account is not included in the list of such persons in the application for a general account, such person shall be deemed to be subject to and bound by the application for a general account, the representation, actions, inactions, and submissions of the authorized account representative and any alternate authorized account representative of the account, and the decisions and orders of the Administrator, as if the person were included in such list.

(B) Within 30 days after any change in the persons having an ownership interest with respect to Texas SO<sub>2</sub> Trading Program allowances in the general account, including the addition or removal of a person, the authorized

account representative or any alternate authorized account representative shall submit a revision to the application for a general account amending the list of persons having an ownership interest with respect to the Texas SO<sub>2</sub> Trading Program allowances in the general account to include the change.

(4) *Objections concerning authorized account representative and alternate authorized account representative.* (i) Once a complete application for a general account under paragraph (b)(1) of this section has been submitted and received, the Administrator will rely on the application unless and until a superseding complete application for a general account under paragraph (b)(1) of this section is received by the Administrator.

(ii) Except as provided in paragraph (b)(4)(i) of this section, no objection or other communication submitted to the Administrator concerning the authorization, or any representation, action, inaction, or submission of the authorized account representative or any alternate authorized account representative of a general account shall affect any representation, action, inaction, or submission of the authorized account representative or any alternate authorized account representative or the finality of any decision or order by the Administrator under the Texas SO<sub>2</sub> Trading Program.

(iii) The Administrator will not adjudicate any private legal dispute concerning the authorization or any representation, action, inaction, or submission of the authorized account representative or any alternate authorized account representative of a general account, including private legal disputes concerning the proceeds of Texas SO<sub>2</sub> Trading Program allowance transfers.

(5) *Delegation by authorized account representative and alternate authorized account representative.* (i) An authorized account representative of a general account may delegate, to one or more natural persons, his or her authority to make an electronic submission to the Administrator provided for or required under this subpart.

(ii) An alternate authorized account representative of a general account may delegate, to one or more natural persons, his or her authority to make an electronic submission to the Administrator provided for or required under this subpart.

(iii) In order to delegate authority to a natural person to make an electronic submission to the Administrator in accordance with paragraph (b)(5)(i) or (ii) of this section, the authorized



account representative or alternate authorized account representative, as appropriate, must submit to the Administrator a notice of delegation, in a format prescribed by the Administrator, that includes the following elements:

(A) The name, address, email address, telephone number, and facsimile transmission number (if any) of such authorized account representative or alternate authorized account representative;

(B) The name, address, email address, telephone number, and facsimile transmission number (if any) of each such natural person (referred to in this section as an "agent");

(C) For each such natural person, a list of the type or types of electronic submissions under paragraph (b)(5)(i) or (ii) of this section for which authority is delegated to him or her;

(D) The following certification statement by such authorized account representative or alternate authorized account representative: "I agree that any electronic submission to the Administrator that is made by an agent identified in this notice of delegation and of a type listed for such agent in this notice of delegation and that is made when I am an authorized account representative or alternate authorized account representative, as appropriate, and before this notice of delegation is superseded by another notice of delegation under 40 CFR 97.920(b)(5)(iv) shall be deemed to be an electronic submission by me."; and

(E) The following certification statement by such authorized account representative or alternate authorized account representative: "Until this notice of delegation is superseded by another notice of delegation under 40 CFR 97.920(b)(5)(iv), I agree to maintain an email account and to notify the Administrator immediately of any change in my email address unless all delegation of authority by me under 40 CFR 97.920(b)(5) is terminated."

(iv) A notice of delegation submitted under paragraph (b)(5)(iii) of this section shall be effective, with regard to the authorized account representative or alternate authorized account representative identified in such notice, upon receipt of such notice by the Administrator and until receipt by the Administrator of a superseding notice of delegation submitted by such authorized account representative or alternate authorized account representative, as appropriate. The superseding notice of delegation may replace any previously identified agent, add a new agent, or eliminate entirely any delegation of authority.

(v) Any electronic submission covered by the certification in paragraph (b)(5)(iii)(D) of this section and made in accordance with a notice of delegation effective under paragraph (b)(5)(iv) of this section shall be deemed to be an electronic submission by the authorized account representative or alternate authorized account representative submitting such notice of delegation.

(6) *Closing a general account.* (i) The authorized account representative or alternate authorized account representative of a general account may submit to the Administrator a request to close the account. Such request shall include a correctly submitted Texas SO<sub>2</sub> Trading Program allowance transfer under § 97.922 for any Texas SO<sub>2</sub> Trading Program allowances in the account to one or more other Allowance Management System accounts.

(ii) If a general account has no Texas SO<sub>2</sub> Trading Program allowance transfers to or from the account for a 12-month period or longer and does not contain any Texas SO<sub>2</sub> Trading Program allowances, the Administrator may notify the authorized account representative for the account that the account will be closed after 30 days after the notice is sent. The account will be closed after the 30-day period unless, before the end of the 30-day period, the Administrator receives a correctly submitted Texas SO<sub>2</sub> Trading Program allowance transfer under § 97.922 to the account or a statement submitted by the authorized account representative or alternate authorized account representative demonstrating to the satisfaction of the Administrator good cause as to why the account should not be closed.

(c) *Account identification.* The Administrator will assign a unique identifying number to each account established under paragraph (a) or (b) of this section.

(d) *Responsibilities of authorized account representative and alternate authorized account representative.* After the establishment of a compliance account or general account, the Administrator will accept or act on a submission pertaining to the account, including, but not limited to, submissions concerning the deduction or transfer of Texas SO<sub>2</sub> Trading Program allowances in the account, only if the submission has been made, signed, and certified in accordance with §§ 97.914(a) and 97.918 or paragraphs (b)(2)(ii) and (b)(5) of this section.

#### **§ 97.921 Recordation of Texas SO<sub>2</sub> Trading Program allowance allocations.**

(a) By November 1, 2018, the Administrator will record in each Texas

SO<sub>2</sub> Trading Program source's compliance account the Texas SO<sub>2</sub> Trading Program allowances allocated to the Texas SO<sub>2</sub> Trading Program units at the source in accordance with § 97.911(a) for the control periods in 2019, 2020, 2021, and 2022. The Administrator may delay recordation of Texas SO<sub>2</sub> Trading Program allowances for the specified control periods if the State of Texas submits a SIP revision before the recordation deadline.

(b) By July 1, 2019 and July 1 of each year thereafter, the Administrator will record in each Texas SO<sub>2</sub> Trading Program source's compliance account the Texas SO<sub>2</sub> Trading Program allowances allocated to the Texas SO<sub>2</sub> Trading Program units at the source in accordance with § 97.911(a) for the control period in the fourth year after the year of the applicable recordation deadline under this paragraph. The Administrator may delay recordation of the Texas SO<sub>2</sub> Trading Program allowances for the applicable control periods if the State of Texas submits a SIP revision by May 1 of the year of the applicable recordation deadline under this paragraph.

(c) By February 15, 2020, and February 15 of each year thereafter, the Administrator will record in each Texas SO<sub>2</sub> Trading Program source's compliance account the allowances allocated from the Texas SO<sub>2</sub> Trading Program Supplemental Allowance Pool in accordance with § 97.912 for the control period in the year of the applicable recordation deadline under this paragraph.

(d) By July 1, 2019 and July 1 of each year thereafter, the Administrator will record in each Texas SO<sub>2</sub> Trading Program source's compliance account the Texas SO<sub>2</sub> Trading Program allowances allocated to the Texas SO<sub>2</sub> Trading Program units at the source in accordance with § 97.911(b).

(e) When recording the allocation of Texas SO<sub>2</sub> Trading Program allowances to a Texas SO<sub>2</sub> Trading Program unit in an Allowance Management System account, the Administrator will assign each Texas SO<sub>2</sub> Trading Program allowance a unique identification number that will include digits identifying the year of the control period for which the Texas SO<sub>2</sub> Trading Program allowance is allocated.

#### **§ 97.922 Submission of Texas SO<sub>2</sub> Trading Program allowance transfers.**

(a) An authorized account representative seeking recordation of a Texas SO<sub>2</sub> Trading Program allowance transfer shall submit the transfer to the Administrator.

(b) A Texas SO<sub>2</sub> Trading Program allowance transfer shall be correctly submitted if:

(1) The transfer includes the following elements, in a format prescribed by the Administrator:

(i) The account numbers established by the Administrator for both the transferor and transferee accounts;

(ii) The serial number of each Texas SO<sub>2</sub> Trading Program allowance that is in the transferor account and is to be transferred; and

(iii) The name and signature of the authorized account representative of the transferor account and the date signed; and

(2) When the Administrator attempts to record the transfer, the transferor account includes each Texas SO<sub>2</sub> Trading Program allowance identified by serial number in the transfer.

**§ 97.923 Recordation of Texas SO<sub>2</sub> Trading Program allowance transfers.**

(a) Within 5 business days (except as provided in paragraph (b) of this section) of receiving a Texas SO<sub>2</sub> Trading Program allowance transfer that is correctly submitted under § 97.922, the Administrator will record a Texas SO<sub>2</sub> Trading Program allowance transfer by moving each Texas SO<sub>2</sub> Trading Program allowance from the transferor account to the transferee account as specified in the transfer.

(b) A Texas SO<sub>2</sub> Trading Program allowance transfer to or from a compliance account that is submitted for recordation after the allowance transfer deadline for a control period and that includes any Texas SO<sub>2</sub> Trading Program allowances allocated for any control period before such allowance transfer deadline will not be recorded until after the Administrator completes the deductions from such compliance account under § 97.924 for the control period immediately before such allowance transfer deadline.

(c) Where a Texas SO<sub>2</sub> Trading Program allowance transfer is not correctly submitted under § 97.922, the Administrator will not record such transfer.

(d) Within 5 business days of recordation of a Texas SO<sub>2</sub> Trading Program allowance transfer under paragraphs (a) and (b) of the section, the Administrator will notify the authorized account representatives of both the transferor and transferee accounts.

(e) Within 10 business days of receipt of a Texas SO<sub>2</sub> Trading Program allowance transfer that is not correctly submitted under § 97.922, the Administrator will notify the authorized account representatives of both accounts subject to the transfer of:

(1) A decision not to record the transfer, and

(2) The reasons for such non-recordation.

**§ 97.924 Compliance with Texas SO<sub>2</sub> Trading Program emissions limitations.**

(a) *Availability for deduction for compliance.* Texas SO<sub>2</sub> Trading Program allowances are available to be deducted for compliance with a source's Texas SO<sub>2</sub> Trading Program emissions limitation for a control period in a given year only if the Texas SO<sub>2</sub> Trading Program allowances:

(1) Were allocated for such control period or a control period in a prior year; and

(2) Are held in the source's compliance account as of the allowance transfer deadline for such control period.

(b) *Deductions for compliance.* After the recordation, in accordance with § 97.923, of Texas SO<sub>2</sub> Trading Program allowance transfers submitted by the allowance transfer deadline for a control period in a given year, the Administrator will deduct from each source's compliance account Texas SO<sub>2</sub> Trading Program allowances available under paragraph (a) of this section in order to determine whether the source meets the Texas SO<sub>2</sub> Trading Program emissions limitation for such control period, as follows:

(1) Until the amount of Texas SO<sub>2</sub> Trading Program allowances deducted equals the number of tons of total SO<sub>2</sub> emissions from all Texas SO<sub>2</sub> Trading Program units at the source for such control period; or

(2) If there are insufficient Texas SO<sub>2</sub> Trading Program allowances to complete the deductions in paragraph (b)(1) of this section, until no more Texas SO<sub>2</sub> Trading Program allowances available under paragraph (a) of this section remain in the compliance account.

(c)(1) *Identification of Texas SO<sub>2</sub> Trading Program allowances by serial number.* The authorized account representative for a source's compliance account may request that specific Texas SO<sub>2</sub> Trading Program allowances, identified by serial number, in the compliance account be deducted for emissions or excess emissions for a control period in a given year in accordance with paragraph (b) or (d) of this section. In order to be complete, such request shall be submitted to the Administrator by the allowance transfer deadline for such control period and include, in a format prescribed by the Administrator, the identification of the Texas SO<sub>2</sub> Trading Program source and the appropriate serial numbers.

(2) *First-in, first-out.* The Administrator will deduct Texas SO<sub>2</sub> Trading Program allowances under paragraph (b) or (d) of this section from the source's compliance account in accordance with a complete request under paragraph (c)(1) of this section or, in the absence of such request or in the case of identification of an insufficient amount of Texas SO<sub>2</sub> Trading Program allowances in such request, on a first-in, first-out accounting basis in the following order:

(i) Any Texas SO<sub>2</sub> Trading Program allowances that were recorded in the compliance account pursuant to § 97.921 and not transferred out of the compliance account, in the order of recordation; and then

(ii) Any other Texas SO<sub>2</sub> Trading Program allowances that were transferred to and recorded in the compliance account pursuant to this subpart, in the order of recordation.

(d) *Deductions for excess emissions.* After making the deductions for compliance under paragraph (b) of this section for a control period in a year in which the Texas SO<sub>2</sub> Trading Program source has excess emissions, the Administrator will deduct from the source's compliance account an amount of Texas SO<sub>2</sub> Trading Program allowances, allocated for a control period in a prior year or the control period in the year of the excess emissions or in the immediately following year, equal to three times the number of tons of the source's excess emissions.

(e) *Recordation of deductions.* The Administrator will record in the appropriate compliance account all deductions from such an account under paragraphs (b) and (d) of this section.

**§ 97.925 [Reserved]**

**§ 97.926 Banking.**

(a) A Texas SO<sub>2</sub> Trading Program allowance may be banked for future use or transfer in a compliance account or general account in accordance with paragraph (b) of this section.

(b) Any Texas SO<sub>2</sub> Trading Program allowance that is held in a compliance account or a general account will remain in such account unless and until the Texas SO<sub>2</sub> Trading Program allowance is deducted or transferred under § 97.911(c), § 97.923, § 97.924, § 97.927, or § 97.928.

**§ 97.927 Account error.**

The Administrator may, at his or her sole discretion and on his or her own motion, correct any error in any Allowance Management System account. Within 10 business days of



making such correction, the Administrator will notify the authorized account representative for the account.

**§ 97.928 Administrator's action on submissions.**

(a) The Administrator may review and conduct independent audits concerning any submission under the Texas SO<sub>2</sub> Trading Program and make appropriate adjustments of the information in the submission.

(b) The Administrator may deduct Texas SO<sub>2</sub> Trading Program allowances from or transfer Texas SO<sub>2</sub> Trading Program allowances to a compliance account, based on the information in a submission, as adjusted under paragraph (a) of this section, and record such deductions and transfers.

**§ 97.929 [Reserved]**

**§ 97.930 General monitoring, recordkeeping, and reporting requirements.**

The owners and operators, and to the extent applicable, the designated representative, of a Texas SO<sub>2</sub> Trading Program unit, shall comply with the monitoring, recordkeeping, and reporting requirements as provided in this subpart and subparts F and G of part 75 of this chapter. For purposes of applying such requirements, the definitions in § 97.902 and in § 72.2 of this chapter shall apply, the terms "affected unit," "designated representative," and "continuous emission monitoring system" (or "CEMS") in part 75 of this chapter shall be deemed to refer to the terms "Texas SO<sub>2</sub> Trading Program unit," "designated representative," and "continuous emission monitoring system" (or "CEMS") respectively as defined in § 97.902. The owner or operator of a unit that is not a Texas SO<sub>2</sub> Trading Program unit but that is monitored under § 75.16(b)(2) of this chapter shall comply with the same monitoring, recordkeeping, and reporting requirements as a Texas SO<sub>2</sub> Trading Program unit.

(a) *Requirements for installation, certification, and data accounting.* The owner or operator of each Texas SO<sub>2</sub> Trading Program unit shall:

(1) Install all monitoring systems required under this subpart for monitoring SO<sub>2</sub> mass emissions and individual unit heat input (including all systems required to monitor SO<sub>2</sub> concentration, stack gas moisture content, stack gas flow rate, CO<sub>2</sub> or O<sub>2</sub> concentration, and fuel flow rate, as applicable, in accordance with §§ 75.11 and 75.16 of this chapter);

(2) Successfully complete all certification tests required under § 97.931 and meet all other

requirements of this subpart and part 75 of this chapter applicable to the monitoring systems under paragraph (a)(1) of this section; and

(3) Record, report, and quality-assure the data from the monitoring systems under paragraph (a)(1) of this section.

(b) *Compliance deadlines.* Except as provided in paragraph (e) of this section, the owner or operator of a Texas SO<sub>2</sub> Trading Program unit shall meet the monitoring system certification and other requirements of paragraphs (a)(1) and (2) of this section on or before the later of the following dates and shall record, report, and quality-assure the data from the monitoring systems under paragraph (a)(1) of this section on and after:

(1) For a Texas SO<sub>2</sub> Trading Program unit under § 97.904(a), January 1, 2019; or

(2) For a Texas SO<sub>2</sub> Trading Program unit under § 97.904(b), January 1 of the first control period for which the unit is a Texas SO<sub>2</sub> Trading Program unit.

(3) The owner or operator of a Texas SO<sub>2</sub> Trading Program unit for which construction of a new stack or flue or installation of add-on SO<sub>2</sub> emission controls is completed after the applicable deadline under paragraph (b)(1) or (2) of this section shall meet the requirements of § 75.4(e)(1) through (4) of this chapter, except that:

(i) Such requirements shall apply to the monitoring systems required under § 97.930 through § 97.935, rather than the monitoring systems required under part 75 of this chapter;

(ii) SO<sub>2</sub> concentration, stack gas moisture content, stack gas volumetric flow rate, and O<sub>2</sub> or CO<sub>2</sub> concentration data shall be determined and reported, rather than the data listed in § 75.4(e)(2) of this chapter; and

(iii) Any petition for another procedure under § 75.4(e)(2) of this chapter shall be submitted under § 97.935, rather than § 75.66 of this chapter.

(c) *Reporting data.* The owner or operator of a Texas SO<sub>2</sub> Trading Program unit that does not meet the applicable compliance date set forth in paragraph (b) of this section for any monitoring system under paragraph (a)(1) of this section shall, for each such monitoring system, determine, record, and report maximum potential (or, as appropriate, minimum potential) values for SO<sub>2</sub> concentration, stack gas flow rate, stack gas moisture content, fuel flow rate, and any other parameters required to determine SO<sub>2</sub> mass emissions and heat input in accordance with § 75.31(b)(2) or (c)(3) of this chapter or section 2.4 of appendix D to part 75 of this chapter, as applicable.

(d) *Prohibitions.* (1) No owner or operator of a Texas SO<sub>2</sub> Trading Program unit shall use any alternative monitoring system, alternative reference method, or any other alternative to any requirement of this subpart without having obtained prior written approval in accordance with § 97.935.

(2) No owner or operator of a Texas SO<sub>2</sub> Trading Program unit shall operate the unit so as to discharge, or allow to be discharged, SO<sub>2</sub> to the atmosphere without accounting for all such SO<sub>2</sub> in accordance with the applicable provisions of this subpart and part 75 of this chapter.

(3) No owner or operator of a Texas SO<sub>2</sub> Trading Program unit shall disrupt the continuous emission monitoring system, any portion thereof, or any other approved emission monitoring method, and thereby avoid monitoring and recording SO<sub>2</sub> mass discharged into the atmosphere or heat input, except for periods of recertification or periods when calibration, quality assurance testing, or maintenance is performed in accordance with the applicable provisions of this subpart and part 75 of this chapter.

(4) No owner or operator of a Texas SO<sub>2</sub> Trading Program unit shall retire or permanently discontinue use of the continuous emission monitoring system, any component thereof, or any other approved monitoring system under this subpart, except under any one of the following circumstances:

(i) During the period that the unit is covered by an exemption under § 97.905 that is in effect;

(ii) The owner or operator is monitoring emissions from the unit with another certified monitoring system approved, in accordance with the applicable provisions of this subpart and part 75 of this chapter, by the Administrator for use at that unit that provides emission data for the same pollutant or parameter as the retired or discontinued monitoring system; or

(iii) The designated representative submits notification of the date of certification testing of a replacement monitoring system for the retired or discontinued monitoring system in accordance with § 97.931(d)(3)(i).

(e) *Long-term cold storage.* The owner or operator of a Texas SO<sub>2</sub> Trading Program unit is subject to the applicable provisions of § 75.4(d) of this chapter concerning units in long-term cold storage.

**§ 97.931 Initial monitoring system certification and recertification procedures.**

(a) The owner or operator of a Texas SO<sub>2</sub> Trading Program unit shall be exempt from the initial certification

requirements of this section for a monitoring system under § 97.930(a)(1) if the following conditions are met:

(1) The monitoring system has been previously certified in accordance with part 75 of this chapter; and

(2) The applicable quality-assurance and quality-control requirements of § 75.21 of this chapter and appendices B and D to part 75 of this chapter are fully met for the certified monitoring system described in paragraph (a)(1) of this section.

(b) The recertification provisions of this section shall apply to a monitoring system under § 97.930(a)(1) that is exempt from initial certification requirements under paragraph (a) of this section.

(c) [Reserved]

(d) Except as provided in paragraph (a) of this section, the owner or operator of a Texas SO<sub>2</sub> Trading Program unit shall comply with the following initial certification and recertification procedures, for a continuous monitoring system (*i.e.*, a continuous emission monitoring system and an excepted monitoring system under appendix D to part 75 of this chapter) under § 97.930(a)(1). The owner or operator of a unit that qualifies to use the low mass emissions excepted monitoring methodology under § 75.19 of this chapter or that qualifies to use an alternative monitoring system under subpart E of part 75 of this chapter shall comply with the procedures in paragraph (e) or (f) of this section respectively.

(1) *Requirements for initial certification.* The owner or operator shall ensure that each continuous monitoring system under § 97.930(a)(1) (including the automated data acquisition and handling system) successfully completes all of the initial certification testing required under § 75.20 of this chapter by the applicable deadline in § 97.930(b). In addition, whenever the owner or operator installs a monitoring system to meet the requirements of this subpart in a location where no such monitoring system was previously installed, initial certification in accordance with § 75.20 of this chapter is required.

(2) *Requirements for recertification.* Whenever the owner or operator makes a replacement, modification, or change in any certified continuous emission monitoring system under § 97.930(a)(1) that may significantly affect the ability of the system to accurately measure or record SO<sub>2</sub> mass emissions or heat input rate or to meet the quality-assurance and quality-control requirements of § 75.21 of this chapter or appendix B to part 75 of this chapter, the owner or operator

shall recertify the monitoring system in accordance with § 75.20(b) of this chapter. Furthermore, whenever the owner or operator makes a replacement, modification, or change to the flue gas handling system or the unit's operation that may significantly change the stack flow or concentration profile, the owner or operator shall recertify each continuous emission monitoring system whose accuracy is potentially affected by the change, in accordance with § 75.20(b) of this chapter. Examples of changes to a continuous emission monitoring system that require recertification include replacement of the analyzer, complete replacement of an existing continuous emission monitoring system, or change in location or orientation of the sampling probe or site. Any fuel flowmeter system under § 97.930(a)(1) is subject to the recertification requirements in § 75.20(g)(6) of this chapter.

(3) *Approval process for initial certification and recertification.* For initial certification of a continuous monitoring system under § 97.930(a)(1), paragraphs (d)(3)(i) through (v) of this section apply. For recertifications of such monitoring systems, paragraphs (d)(3)(i) through (iv) of this section and the procedures in § 75.20(b)(5) and (g)(7) of this chapter (in lieu of the procedures in paragraph (d)(3)(v) of this section) apply, provided that in applying paragraphs (d)(3)(i) through (iv) of this section, the words "certification" and "initial certification" are replaced by the word "recertification" and the word "certified" is replaced by with the word "recertified".

(i) *Notification of certification.* The designated representative shall submit to the appropriate EPA Regional Office and the Administrator written notice of the dates of certification testing, in accordance with § 97.933.

(ii) *Certification application.* The designated representative shall submit to the Administrator a certification application for each monitoring system. A complete certification application shall include the information specified in § 75.63 of this chapter.

(iii) *Provisional certification date.* The provisional certification date for a monitoring system shall be determined in accordance with § 75.20(a)(3) of this chapter. A provisionally certified monitoring system may be used under the Texas SO<sub>2</sub> Trading Program for a period not to exceed 120 days after receipt by the Administrator of the complete certification application for the monitoring system under paragraph (d)(3)(ii) of this section. Data measured and recorded by the provisionally certified monitoring system, in

accordance with the requirements of part 75 of this chapter, will be considered valid quality-assured data (retroactive to the date and time of provisional certification), provided that the Administrator does not invalidate the provisional certification by issuing a notice of disapproval within 120 days of the date of receipt of the complete certification application by the Administrator.

(iv) *Certification application approval process.* The Administrator will issue a written notice of approval or disapproval of the certification application to the owner or operator within 120 days of receipt of the complete certification application under paragraph (d)(3)(ii) of this section. In the event the Administrator does not issue such a notice within such 120-day period, each monitoring system that meets the applicable performance requirements of part 75 of this chapter and is included in the certification application will be deemed certified for use under the Texas SO<sub>2</sub> Trading Program.

(A) *Approval notice.* If the certification application is complete and shows that each monitoring system meets the applicable performance requirements of part 75 of this chapter, then the Administrator will issue a written notice of approval of the certification application within 120 days of receipt.

(B) *Incomplete application notice.* If the certification application is not complete, then the Administrator will issue a written notice of incompleteness that sets a reasonable date by which the designated representative must submit the additional information required to complete the certification application. If the designated representative does not comply with the notice of incompleteness by the specified date, then the Administrator may issue a notice of disapproval under paragraph (d)(3)(iv)(C) of this section.

(C) *Disapproval notice.* If the certification application shows that any monitoring system does not meet the performance requirements of part 75 of this chapter or if the certification application is incomplete and the requirement for disapproval under paragraph (d)(3)(iv)(B) of this section is met, then the Administrator will issue a written notice of disapproval of the certification application. Upon issuance of such notice of disapproval, the provisional certification is invalidated by the Administrator and the data measured and recorded by each uncertified monitoring system shall not be considered valid quality-assured data beginning with the date and hour of

provisional certification (as defined under § 75.20(a)(3) of this chapter).

(D) *Audit decertification.* The Administrator may issue a notice of disapproval of the certification status of a monitor in accordance with § 97.932(b).

(v) *Procedures for loss of certification.* If the Administrator issues a notice of disapproval of a certification application under paragraph (d)(3)(iv)(C) of this section or a notice of disapproval of certification status under paragraph (d)(3)(iv)(D) of this section, then:

(A) The owner or operator shall substitute the following values, for each disapproved monitoring system, for each hour of unit operation during the period of invalid data specified under § 75.20(a)(4)(iii), § 75.20(g)(7), or § 75.21(e) of this chapter and continuing until the applicable date and hour specified under § 75.20(a)(5)(i) or (g)(7) of this chapter:

(1) For a disapproved SO<sub>2</sub> pollutant concentration monitor and disapproved flow monitor, respectively, the maximum potential concentration of SO<sub>2</sub> and the maximum potential flow rate, as defined in sections 2.1.1.1 and 2.1.4.1 of appendix A to part 75 of this chapter.

(2) For a disapproved moisture monitoring system and disapproved diluent gas monitoring system, respectively, the minimum potential moisture percentage and either the maximum potential CO<sub>2</sub> concentration or the minimum potential O<sub>2</sub> concentration (as applicable), as defined in sections 2.1.5, 2.1.3.1, and 2.1.3.2 of appendix A to part 75 of this chapter.

(3) For a disapproved fuel flowmeter system, the maximum potential fuel flow rate, as defined in section 2.4.2.1 of appendix D to part 75 of this chapter.

(B) The designated representative shall submit a notification of certification retest dates and a new certification application in accordance with paragraphs (d)(3)(i) and (ii) of this section.

(C) The owner or operator shall repeat all certification tests or other requirements that were failed by the monitoring system, as indicated in the Administrator's notice of disapproval, no later than 30 unit operating days after the date of issuance of the notice of disapproval.

(e) The owner or operator of a unit qualified to use the low mass emissions (LME) excepted methodology under § 75.19 of this chapter shall meet the applicable certification and recertification requirements in §§ 75.19(a)(2) and 75.20(h) of this chapter. If the owner or operator of such

a unit elects to certify a fuel flowmeter system for heat input determination, the owner or operator shall also meet the certification and recertification requirements in § 75.20(g) of this chapter.

(f) The designated representative of each unit for which the owner or operator intends to use an alternative monitoring system approved by the Administrator under subpart E of part 75 of this chapter shall comply with the applicable notification and application procedures of § 75.20(f) of this chapter.

#### **§ 97.932 Monitoring system out-of-control periods.**

(a) *General provisions.* Whenever any monitoring system fails to meet the quality-assurance and quality-control requirements or data validation requirements of part 75 of this chapter, data shall be substituted using the applicable missing data procedures in subpart D or appendix D to part 75 of this chapter.

(b) *Audit decertification.* Whenever both an audit of a monitoring system and a review of the initial certification or recertification application reveal that any monitoring system should not have been certified or recertified because it did not meet a particular performance specification or other requirement under § 97.931 or the applicable provisions of part 75 of this chapter, both at the time of the initial certification or recertification application submission and at the time of the audit, the Administrator will issue a notice of disapproval of the certification status of such monitoring system. For the purposes of this paragraph, an audit shall be either a field audit or an audit of any information submitted to the Administrator or any State or permitting authority. By issuing the notice of disapproval, the Administrator revokes prospectively the certification status of the monitoring system. The data measured and recorded by the monitoring system shall not be considered valid quality-assured data from the date of issuance of the notification of the revoked certification status until the date and time that the owner or operator completes subsequently approved initial certification or recertification tests for the monitoring system. The owner or operator shall follow the applicable initial certification or recertification procedures in § 97.931 for each disapproved monitoring system.

#### **§ 97.933 Notifications concerning monitoring.**

The designated representative of a Texas SO<sub>2</sub> Trading Program unit shall

submit written notice to the Administrator in accordance with § 75.61 of this chapter.

#### **§ 97.934 Recordkeeping and reporting.**

(a) *General provisions.* The designated representative of a Texas SO<sub>2</sub> Trading Program unit shall comply with all recordkeeping and reporting requirements in paragraphs (b) through (e) of this section, the applicable recordkeeping and reporting requirements in subparts F and G of part 75 of this chapter, and the requirements of § 97.914(a).

(b) *Monitoring plans.* The owner or operator of a Texas SO<sub>2</sub> Trading Program unit shall comply with the requirements of § 75.62 of this chapter.

(c) *Certification applications.* The designated representative shall submit an application to the Administrator within 45 days after completing all initial certification or recertification tests required under § 97.931, including the information required under § 75.63 of this chapter.

(d) *Quarterly reports.* The designated representative shall submit quarterly reports, as follows:

(1) The designated representative shall report the SO<sub>2</sub> mass emissions data and heat input data for a Texas SO<sub>2</sub> Trading Program unit, in an electronic quarterly report in a format prescribed by the Administrator, for each calendar quarter beginning with the later of:

(i) The calendar quarter covering January 1, 2019 through March 31, 2019; or

(ii) The calendar quarter corresponding to the earlier of the date of provisional certification or the applicable deadline for initial certification under § 97.930(b).

(2) The designated representative shall submit each quarterly report to the Administrator within 30 days after the end of the calendar quarter covered by the report. Quarterly reports shall be submitted in the manner specified in § 75.64 of this chapter.

(3) For Texas SO<sub>2</sub> Trading Program units that are also subject to the Acid Rain Program or CSAPR NO<sub>x</sub> Ozone Season Group 2 Trading Program, quarterly reports shall include the applicable data and information required by subparts F through H of part 75 of this chapter as applicable, in addition to the SO<sub>2</sub> mass emission data, heat input data, and other information required by this subpart.

(4) The Administrator may review and conduct independent audits of any quarterly report in order to determine whether the quarterly report meets the requirements of this subpart and part 75



of this chapter, including the requirement to use substitute data.

(i) The Administrator will notify the designated representative of any determination that the quarterly report fails to meet any such requirements and specify in such notification any corrections that the Administrator believes are necessary to make through resubmission of the quarterly report and a reasonable time period within which the designated representative must respond. Upon request by the designated representative, the Administrator may specify reasonable extensions of such time period. Within the time period (including any such extensions) specified by the Administrator, the designated representative shall resubmit the quarterly report with the corrections specified by the Administrator, except to the extent the designated representative provides information demonstrating that a specified correction is not necessary because the quarterly report already meets the requirements of this subpart and part 75 of this chapter that are relevant to the specified correction.

(ii) Any resubmission of a quarterly report shall meet the requirements applicable to the submission of a quarterly report under this subpart and part 75 of this chapter, except for the deadline set forth in paragraph (d)(2) of this section.

(e) *Compliance certification.* The designated representative shall submit to the Administrator a compliance certification (in a format prescribed by the Administrator) in support of each quarterly report based on reasonable inquiry of those persons with primary responsibility for ensuring that all of the unit's emissions are correctly and fully monitored. The certification shall state that:

(1) The monitoring data submitted were recorded in accordance with the applicable requirements of this subpart and part 75 of this chapter, including the quality assurance procedures and specifications; and

(2) For a unit with add-on SO<sub>2</sub> emission controls and for all hours where SO<sub>2</sub> data are substituted in accordance with § 75.34(a)(1) of this chapter, the add-on emission controls were operating within the range of parameters listed in the quality assurance/quality control program under appendix B to part 75 of this chapter and the substitute data values do not systematically underestimate SO<sub>2</sub> emissions.

**§ 97.935 Petitions for alternatives to monitoring, recordkeeping, or reporting requirements.**

(a) The designated representative of a Texas SO<sub>2</sub> Trading Program unit may submit a petition under § 75.66 of this chapter to the Administrator, requesting

approval to apply an alternative to any requirement of §§ 97.930 through 97.934.

(b) A petition submitted under paragraph (a) of this section shall include sufficient information for the evaluation of the petition, including, at a minimum, the following information:

(1) Identification of each unit and source covered by the petition;

(2) A detailed explanation of why the proposed alternative is being suggested in lieu of the requirement;

(3) A description and diagram of any equipment and procedures used in the proposed alternative;

(4) A demonstration that the proposed alternative is consistent with the purposes of the requirement for which the alternative is proposed and with the purposes of this subpart and part 75 of this chapter and that any adverse effect of approving the alternative will be *de minimis*; and

(5) Any other relevant information that the Administrator may require.

(c) Use of an alternative to any requirement referenced in paragraph (a) of this section is in accordance with this subpart only to the extent that the petition is approved in writing by the Administrator and that such use is in accordance with such approval.

[FR Doc. 2017-21947 Filed 10-16-17; 8:45 am]

**BILLING CODE 6560-50-P**

**IN THE UNITED STATES COURT OF APPEALS  
FOR THE FIFTH CIRCUIT**

NATIONAL PARKS CONSERVATION  
ASSOCIATION, SIERRA CLUB, and  
ENVIRONMENTAL DEFENSE FUND

Petitioners,

v.

U.S. ENVIRONMENTAL PROTECTION  
AGENCY and E. SCOTT PRUITT,  
Administrator, U.S. Environmental Protection  
Agency

Respondents.

Case No. \_\_\_\_\_

**PETITION FOR REVIEW**

Pursuant to the Clean Air Act, 42 U.S.C. § 7607(b)(1), Rule 15 of the Federal Rules of Appellate Procedure, and Fifth Circuit Rule 15, the National Parks Conservation Association, Sierra Club, and Environmental Defense Fund (collectively, “Environmental Petitioners”) file this petition for review of the U.S. Environmental Protection Agency’s (“EPA”) rule entitled *Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan*, which was published in the Federal Register at 82 Fed. Reg. 48,324 (Oct. 17, 2017).<sup>1</sup>

---

<sup>1</sup> Pursuant to Fifth Circuit Rule 15.1, a copy of the Rule is attached to this petition.

This petition for review is timely filed within 60 days of the date of publication in the Federal Register. 42 U.S.C. § 7607(b)(1).

Dated: December 15, 2017

Respectfully submitted,

/s/ Michael Soules

Michael Soules

Earthjustice

1625 Massachusetts Ave. NW, Suite 702

Washington, DC 20036

T: (202) 667-5237

E: msoules@earthjustice.org

Matthew Gerhart

3639 N. Clayton Street

Denver, CO 80205

T: (510) 847-7721

E: megerhart@gmail.com

*Counsel for National Parks Conservation*

*Association, Sierra Club, and Environmental Defense Fund*

Elena Saxonhouse

Sierra Club

2101 Webster Street, Suite 1300

Oakland, CA 94612

T: (415) 977-5765

E: elena.saxonhouse@sierraclub.org

Joshua Smith

Sierra Club

2101 Webster Street, Suite 1300

Oakland, CA 94612

T: (415) 977-5560

E: joshua.smith@sierraclub.org

*Counsel for Sierra Club*



**IN THE UNITED STATES COURT OF APPEALS  
FOR THE FIFTH CIRCUIT**

NATIONAL PARKS CONSERVATION  
ASSOCIATION, SIERRA CLUB, and  
ENVIRONMENTAL DEFENSE FUND

Petitioners,

v.

U.S. ENVIRONMENTAL PROTECTION  
AGENCY and E. SCOTT PRUITT,  
Administrator, U.S. Environmental Protection  
Agency

Respondents.

Case No. \_\_\_\_\_

**CERTIFICATE OF INTERESTED PERSONS**

The undersigned counsel of record certifies that the following listed persons and entities as described in the fourth sentence of Fifth Circuit Rule 28.2.1 have an interest in the outcome of this case. These representations are made in order that the judges of this court may evaluate possible disqualification or recusal.

- National Parks Conservation Association (Petitioner)

National Parks Conservation Association is a national non-profit organization organized and existing under the laws of the District of Columbia. National Parks Conservation Association has no parent corporation, and no publicly held company has 10% or greater ownership in National Parks Conservation Association.

- Sierra Club (Petitioner)

Sierra Club is a national non-profit organization organized and existing under the laws of the State of California. Sierra Club has no parent corporation, and no publicly held company has 10% or greater ownership in Sierra Club.

- Environmental Defense Fund (Petitioner)

Environmental Defense Fund is a national non-profit organization organized and existing under the laws of the State of New York. Environmental Defense Fund has no parent corporation, and no publicly held company has 10% or greater ownership in Environmental Defense Fund.

- Michael Soules, Earthjustice (Counsel for National Parks Conservation Association, Sierra Club, and Environmental Defense Fund)
- Matthew Gerhart (Counsel for National Parks Conservation Association, Sierra Club, and Environmental Defense Fund)
- Elena Saxonhouse, Sierra Club (Counsel for Sierra Club)
- Joshua Smith, Sierra Club (Counsel for Sierra Club)
- United States Environmental Protection Agency (Respondent)
- E. Scott Pruitt, Administrator, United States Environmental Protection Agency (Respondent)
- Samuel Coleman (Acting Regional Administrator for Respondent United States Environmental Protection Agency)
- Jeff Sessions, Attorney General, U.S. Department of Justice (Counsel for Respondents)
- Jeffrey Wood, Acting Assistant Attorney General, Environmental and Natural Resources Division, U.S. Department of Justice (Counsel for Respondents)

- Kevin Minoli (Acting General Counsel for Respondent United States Environmental Protection Agency)

Respectfully Submitted,

/s/ Michael Soules

Michael Soules

*Counsel for Petitioners*

## **CERTIFICATE OF SERVICE**

I hereby certify that on December 15, 2017, a copy of the foregoing Petition for Review and Certificate of Interested Persons has been served by certified mail, return receipt requested on the following:

Jeff Sessions  
Attorney General  
U.S. Department of Justice  
950 Pennsylvania Avenue, NW  
Washington, DC 20530-0001

U.S. Department of Justice  
Environmental and Natural Resources Division  
Law and Policy Section  
950 Pennsylvania Avenue, NW  
Washington, DC 20530-0001

Correspondence Control Unit  
Office of General Counsel (2311)  
United States Environmental Protection Agency  
William Jefferson Clinton Federal Building  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

E. Scott Pruitt  
Administrator  
U.S. Environmental Protection Agency  
Mail Code 1101A  
William Jefferson Clinton Federal Building  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

Samuel Coleman  
Acting Regional Administrator  
U.S. Environmental Protection Agency  
Region 6  
1445 Ross Avenue, Suite 1200  
Mail Code 6RA  
Dallas, TX 75202-2733

Dated: December 15, 2017

/s/ Michael Soules  
Michael Soules  
*Counsel for Petitioners*



December 15, 2017

***BY FEDERAL EXPRESS AND E-MAIL***

Administrator Scott Pruitt  
Office of the Administrator  
U.S. Environmental Protection Agency  
William Jefferson Clinton Building – Mail Code 1101A  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
Pruitt.Scott@epa.gov

**Re:   Petition for Reconsideration of *Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan (Oct. 17, 2017); EPA–R06–OAR–2016–0611; FRL–9969–07–Region 6***

Pursuant to Section 307(d)(7)(B) of the Clean Air Act (“CAA” or “the Act”), 42 U.S.C. § 7607(d)(7)(B), National Parks Conservation Association (“NPCA”), Sierra Club, and Environmental Defense Fund (collectively, “Petitioners”) respectfully petition the Administrator of the Environmental Protection Agency (“the Administrator” or “EPA”) to reconsider certain aspects of the rule captioned as “Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan,” which was published at 82 Fed. Reg. 48,324 (Oct. 17, 2017) (hereinafter, the “Trading Rule”). As explained below, the Trading Rule is unlawful, arbitrary, and capricious because (1) the Trading Rule was adopted without following notice and comment requirements; (2) EPA provided no rational basis for abandoning its January 2017 best available retrofit technology (“BART”) proposal in favor of the Trading Rule; (3) the Trading Rule fails to satisfy the requirement that a BART alternative achieve greater reasonable progress than the installation and operation of BART; (4) EPA’s finding that the Trading Rule satisfies Texas’ section 110(a)(2)(D)(i)(II) visibility transport plan requirements is unlawful, arbitrary, and capricious; (5) EPA cannot lawfully adopt the Trading Rule’s intrastate trading scheme because it is too late to do so; (6) the Rule includes provisions that would unlawfully suspend the intrastate trading scheme by the mere submission of a state implementation plan; (7) the Rule’s treatment of retired electric generating units is arbitrary and capricious; (8) the supplemental allowance pool provision is

arbitrary; and (9) EPA failed to recognize that this rule is based on a determination of nationwide scope and effect.

The grounds for the objections raised in this petition arose after the period for public comment and are of central relevance to the outcome of the rule. The Administrator must therefore “convene a proceeding for reconsideration of the rule and provide the same procedural rights as would have been afforded had the information been available at the time the rule was proposed.” 42 U.S.C. § 7607(d)(7)(B).<sup>1</sup>

## BACKGROUND

### A. *Haze Pollution from Texas Power Plants*

Because many Texas power plants lack the pollution controls widely used in other states,<sup>2</sup> Texas sources emit more sulfur dioxide (“SO<sub>2</sub>”) than sources in any other state, by far.<sup>3</sup> Sulfur dioxide, or SO<sub>2</sub>, contributes to both hazy skies and health problems downwind. Sulfur dioxide reacts with other compounds in the air to form fine particles that penetrate sensitive parts of the lungs and can aggravate respiratory and heart diseases. Airborne fine particles are linked to increased hospital admissions, missed work and school, and premature death.<sup>4</sup>

SO<sub>2</sub> emissions from Texas cause visible air pollution in at least 15 national parks, monuments, and wilderness areas across seven states.<sup>5</sup> Among these are Big Bend National Park

---

<sup>1</sup> Because judicial review of the Trading Rule is available by the filing of a petition for review within sixty days of the publication date—that is, by December 16, 2017—the grounds for the objections arose “within the time specified for judicial review.” 42 U.S.C. § 7607(d)(7)(B).

Note: as explained in detail in Section II below, Petitioners maintain that the Trading Rule is not a final agency action and that the U.S. District Court for the District of Columbia has jurisdiction and authority to remedy EPA’s failure to take final agency action required by the applicable consent decree. Petitioners are therefore filing this reconsideration petition out of an abundance of caution, and because, if the district court denies Petitioners’ pending motion to enforce the consent decree, EPA would still be obligated to correct the legal violations discussed below.

<sup>2</sup> See EPA, FIP Cost TSD at 1, Docket ID No. EPA-R06-OAR-2014-0754-0008, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2014-0754-0008>.

<sup>3</sup> See generally EPA, Air Markets Program Data, *available at* <https://ampd.epa.gov/ampd/>.

<sup>4</sup> See EPA, Sulfur Dioxide Basics, *available at* <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics>; EPA, Health and Environmental Effects of Particulate Matter (PM), *available at* <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>.

<sup>5</sup> EPA, BART Screening TSD at 40, Docket ID No. EPA-R06-OAR-2016-0611-0005, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0005>; *see also* EPA, BART Modeling TSD at App. E, Docket ID No. EPA-R06-OAR-2016-0611-0006, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0006>. In its screening and modeling analysis, EPA evaluated the impacts of the BART-eligible electric generating units in Texas at 15 different Class I areas, including: Breton Wilderness Area in Louisiana; Big Bend and Guadalupe Mountains National Parks in Texas; Wichita Mountains National Wildlife Refuge in Oklahoma; Caney Creek and Upper Buffalo Wilderness Areas in Arkansas; Bandelier National Monument, Salt Creek, Wheeler Park, White Mountains, and Pecos Wilderness Areas, and Carlsbad Caverns National Park in New Mexico; Hercules-Glades Wilderness Area and Mingo National Wildlife Refuge in Missouri; and

and Guadalupe Mountains National Park in west Texas, which contain spectacular scenic views that draw visitors from around the world. The National Park Service has noted that “[t]he scenic beauty of Big Bend National Park is often spoiled by haze that obscures its many vistas.”<sup>6</sup> This haze is primarily caused by emissions of SO<sub>2</sub> and other pollutants from power plants and other anthropogenic sources.<sup>7</sup>

Texas’ air pollution does not stop at its borders. For example, Texas sources cause significant visibility impairment at the Wichita Mountains Wilderness Area in Oklahoma that are “several times greater than the impact from Oklahoma’s own point sources.” 79 Fed. Reg. 74,818, 74,822 (Dec. 16, 2014).

### **B. *The Clean Air Act’s Regional Haze Program***

Recognizing the “intrinsic beauty and historical and archaeological treasures” of the national parks and wilderness areas,<sup>8</sup> Congress established “as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution.” 42 U.S.C. § 7491(a)(1). In 1990, after finding that the EPA and the states had not made adequate progress toward reducing visibility impairment in the nation’s Class I areas,<sup>9</sup> Congress amended the Clean Air Act to curb emissions that may reasonably be anticipated to cause or contribute to visibility impairment at national parks and wilderness areas. *Id.* § 7492.

In order to achieve the goal of natural visibility in Class I areas, Congress instructed states to submit “implementation plan[s]” containing “emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward the national goal.” 42 U.S.C. § 7491(b)(2). As a critical, minimum element of any regional haze plan, the state (or EPA, where the state fails to do so) must require BART controls at fossil fuel-fired power plants and other major stationary sources that “may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area,” and were in existence in

---

Great Sand Dunes National Park in Colorado. *See* BART Screening TSD at 73-74; BART Modeling TSD at 85-90. In its 2015 regional haze rulemaking for Texas and Oklahoma, EPA also noted pollution impacts from several of the same generating units at San Pedro National Park, Bosque del Apache Wilderness Area, and Gila Wilderness Area in New Mexico, and Rocky Mountain National Park in Colorado. *See* “TX116-007-33 Vis modeling summary” spreadsheet, Docket ID No. EPA-R06-OAR-2014-0754-0007, available at <https://www.regulations.gov/document?D=EPA-R06-OAR-2014-0754-0007>, relevant portions (attached as Ex. A).

<sup>6</sup> NPS, *Understanding Haze in Big Bend National Park*, available at [http://www.nps.gov/bibe/learn/nature/upload/Bravo\\_Fact\\_Sheet.pdf](http://www.nps.gov/bibe/learn/nature/upload/Bravo_Fact_Sheet.pdf).

<sup>7</sup> *See, e.g.*, Technical Support Document for the Oklahoma and Texas Regional Haze Federal Implementation Plans at A-17 (Nov. 2014), Docket ID No. EPA-R06-OAR-2016-0611-0052, available at <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0052> (hereinafter, “Reasonable Progress FIP TSD”).

<sup>8</sup> H.R. Rep. No. 95-294, at 203-04 (1977), *reprinted in* 1977 U.S.C.C.A.N 1077, 1282.

<sup>9</sup> Areas designated as mandatory Class I Federal areas (or Class I for short) consist of national parks exceeding 6,000 acres, national wilderness areas and national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. *See* 42 U.S.C. § 7472(a).

1977, but were not in operation before 1962. 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. § 51.308(e).

BART is defined as “*an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility.*” 40 C.F.R. § 51.301 (emphasis added). When determining BART, the states and EPA must analyze “the best system of continuous emission control technology available” by taking into consideration five factors: (1) the costs of compliance, (2) the energy and non-air quality environmental impacts of compliance, (3) existing pollution controls at the source, (4) the remaining useful life of the source, and (5) the degree of visibility improvement from pollution controls. *Id.* § 51.308(e)(1)(ii)(A). BART compels these older, disproportionately-polluting sources to install up-to-date and cost-effective pollution controls.

Under the statute and EPA’s implementing regulations, the default approach to meeting the BART requirements is for a state to consider the five statutory factors on a case-by-case basis “for each major stationary source.” 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. § 51.308(e)(1)(ii)(A). EPA’s regulations allow states to adopt “an emissions trading program or other alternative measure” rather than set BART limits on a case-by-case basis if the applicable standards for using an alternative are met. 40 C.F.R. § 51.308(e)(2).

An alternative to BART “must achieve greater reasonable progress than would be achieved through the installation and operation of BART.” *Id.* A state may demonstrate that an alternative program makes greater reasonable progress than BART by proving that under the alternative program, the clear weight of evidence shows that the alternative would achieve greater reasonable progress than BART, *id.* § 51.308(e)(2)(i)(E), or that (1) visibility does not decline in any Class I area and (2) there is an overall improvement in visibility compared to BART at all affected Class I areas. *Id.* § 51.308(e)(3)(i)-(ii).

### ***C. Procedural Background***

Despite the enormous amounts of haze pollution produced by Texas sources, both Texas and EPA have delayed for decades in developing and implementing a clean-up plan. It has been 40 years since Congress first announced the requirement that states were to develop plans to install the BART at large, aging pollution sources contributing significantly to impaired scenic views, 42 U.S.C. § 7491(b)(2); ten years since the deadline for states to submit such plans, 40 C.F.R. § 51.308(b); and over five years since the original deadline set forth in the governing consent decree for EPA to take final action on a Texas haze plan.<sup>10</sup>

#### ***1. Texas’ inadequate state implementation plan***

Texas failed to submit a haze plan to EPA by the 2007 deadline set by Congress. In 2009, EPA published an official finding to that effect. 74 Fed. Reg. 2392 (Jan. 15, 2009). In

---

<sup>10</sup> Consent Decree at 3-5, *Nat’l Parks Conservation Ass’n v. EPA*, No. 1:11-cv-01548 (ABJ) (D.D.C. Mar. 30, 2012) (ECF Doc. 21).



response, Texas submitted a proposed haze plan to EPA in 2009, two years after the original deadline.<sup>11</sup>

Despite Texas' enormous impact on the visibility of its Class I areas and those in other states, Texas submitted a Regional Haze plan that did not require a single source to install controls or reduce emissions to protect visibility in Class I areas. 81 Fed. Reg. 296, 300 (Jan. 5, 2016). Instead, Texas relied on the emission trading program in EPA's Clean Air Interstate Rule ("CAIR") as an alternative to making BART determinations for all eligible sources, including those at issue in this rule.<sup>12</sup> The D.C. Circuit Court of Appeals had invalidated CAIR in 2008—nearly a year *before* Texas submitted its state implementation plan ("SIP") proposal to EPA for review in March 2009. *See North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir.), *modified*, 550 F.3d 1176 (D.C. Cir. 2008). In response to the D.C. Circuit's ruling invalidating CAIR, in 2012, EPA disapproved the haze plans of 14 states, including Texas, which had relied on CAIR to satisfy the BART requirements. 77 Fed. Reg. 33,642, 33,653 (June 7, 2012).

## **2. EPA's Better-than-BART Rule**

In 2011, in response to the D.C. Circuit's decision invalidating CAIR, EPA promulgated the Cross-State Air Pollution Rule ("CSAPR"), which required 28 states in the eastern U.S., including Texas, to curb power plant emissions of SO<sub>2</sub> and nitrogen oxides ("NO<sub>x</sub>") that cross state lines and significantly contribute to violations of ozone and fine-particle standards in other states. 76 Fed. Reg. 48,208 (Aug. 8, 2011). Promulgated under the Clean Air Act's "good neighbor" provision, 42 U.S.C. § 7410(a)(2)(D)(I), CSAPR allowed sources to trade emission allowances with other sources in the same or different states. *Id.* at 48,348. For each state regulated under CSAPR, EPA contemporaneously promulgated a federal implementation plan ("FIP") allocating that State's emission budget among its in-state electric generating units ("EGUs" or "generating units"). *Id.* at 48,271, 48,284-87.

In 2012, EPA published a rule, 77 Fed. Reg. 33,642 (the "Better-than-BART" Rule), which exempted EGUs covered by the CSAPR trading program from meeting source-specific BART requirements under the Regional Haze Rule. EPA justified the Better-than-BART Rule with computer modeling purporting to show that CSAPR satisfied both criteria of the agency's test for a valid BART alternative, namely, that when compared to EPA's "presumptive" BART emission limits, implementation of CSAPR (1) does not cause visibility to decline in any Class I area, and (2) there is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas, *see* 40 C.F.R. § 51.308(e)(3). As part of that modeling analysis, EPA also conducted a "Sensitivity Analysis,"

---

<sup>11</sup> *See* Texas Commission on Environmental Quality, Revisions to the State Implementation Plan (SIP) Concerning Regional Haze, Project No. 2007-016-SIP-NR (Feb. 25, 2009), *available at* [https://www.tceq.texas.gov/airquality/sip/bart/haze\\_sip.html](https://www.tceq.texas.gov/airquality/sip/bart/haze_sip.html).

<sup>12</sup> EPA issued CAIR in 2005. That rule required 28 states, including Texas, to reduce emissions of SO<sub>2</sub> and NO<sub>x</sub> that significantly contribute to, or interfere with maintenance of, the 1997 National Ambient Air Quality Standard ("NAAQS") for ozone and PM<sub>2.5</sub>. 70 Fed. Reg. 25,162 (May 12, 2005). EPA subsequently determined that those states could also rely on CAIR's cap-and-trade emissions trading program to meet their obligations under the Regional Haze Rule to address BART for EGUs. 70 Fed. Reg. 39,104 (July 6, 2005).

which purported to demonstrate that CSAPR remained a valid “better-than-BART” alternative despite subsequent increases in the emission budgets for Texas and Georgia.<sup>13</sup> In that Sensitivity Analysis, EPA concluded that CSAPR would remain a valid alternative to BART so long as SO<sub>2</sub> emissions from Texas plants remained below 317,000 tons per year.<sup>14</sup>

### 3. *EPA’s obligation to address Texas’ regional haze requirements*

The Clean Air Act required EPA formally to approve or disapprove Texas’ regional haze plan within 18 months of submittal. 42 U.S.C. § 7410(k). By 2011, EPA still had not taken final action on Texas’s 2009 submittal. In August 2011, Petitioners sued EPA, and on March 30, 2012, the District Court entered a consent decree requiring EPA to take final action on the Texas regional haze plan by a date certain. *See* Consent Decree, *NPCA v. EPA*, No. 1:11-cv-01548 (ABJ) (D.D.C. entered Mar. 30, 2012) (ECF Doc. 21) (hereinafter “Consent Decree”).

In December 2015, EPA issued a final rule approving in part and disapproving in part Texas’ regional haze plan, as well as portions of Oklahoma’s “interconnected” plan. *See* 81 Fed. Reg. at 296, 346 (hereinafter, the “Reasonable Progress Rule”). As required by the Clean Air Act, 42 U.S.C. § 7410(c)(1), EPA issued a partial federal plan to correct the deficiencies in Texas’ SIP relating to the so-called reasonable progress elements of the Regional Haze Rule. 81 Fed. Reg. at 297. EPA explicitly declined, however, to take final action concerning Texas’ BART determinations for EGUs. *See, e.g.*, 81 Fed. Reg. at 346. Instead, EPA determined that as a result of the D.C. Circuit’s decision remanding the Texas CSAPR budgets, *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118 (D.C. Cir. 2015) (hereinafter, “*Homer City II*”), neither EPA nor Texas could not rely on CSAPR as an alternative to BART for Texas EGUs. 81 Fed. Reg. at 302.<sup>15</sup>

In July 2016, the Fifth Circuit stayed EPA’s disapproval and promulgation of a FIP addressing the reasonable progress portions of Texas’s regional haze plan. *See Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016). The Fifth Circuit subsequently granted EPA’s motion requesting voluntary remand of the rule so that the agency could reconsider its reasonable progress determinations, which are distinct from the BART requirements at issue here.

---

<sup>13</sup> EPA, Memorandum, Sensitivity Analysis Accounting for Increases in Texas and Georgia Transport Rule State Emissions Budgets (May 29, 2012), Docket ID No. EPA-HQ-OAR-2011-0729-0323 (hereinafter, “CSAPR BART Sensitivity Memo”).

<sup>14</sup> 82 Fed. Reg. at 48,353.

<sup>15</sup> EPA formally issued its proposal to withdraw its federal plan to include Texas in the CSAPR emissions trading program in November 2016, and finalized the withdrawal in September 2017. 81 Fed. Reg. 78,954 (Nov. 10, 2016); 82 Fed. Reg. 45,481 (Sept. 29, 2017). Petitioners NPCA and Sierra Club have petitioned for reconsideration and judicial review of a separate aspect of that rulemaking, which determined that CSAPR remains better than BART for the states remaining in the program, despite the withdrawal of Texas. *See Petition for Partial Reconsideration of Interstate Transport of Fine Particulate Matter: Revision of Federal Implementation Plan Requirements for Texas; Final Rule*; 82 Fed. Reg. 45,481 (Sept. 29, 2017); EPA-HQ-OAR-2016-0598; FRL-9968-46-OAR (filed Nov. 28, 2017); Petition for Review, *Nat’l Parks Conservation Ass’n v. EPA*, No. 17-1253 (D.C. Cir. Nov. 28, 2017).

#### 4. *The January 2017 BART Proposal*

In January 2017, EPA published its BART proposal for Texas electric generating units. *See* 82 Fed. Reg. 912 (Jan. 4, 2017) (hereinafter, the “proposed rule” or “BART proposal”). EPA’s proposal carefully and methodically reviewed BART-eligible units for cost-effective controls and analyzed each of the five statutory BART factors consistent with prior EPA regulations and guidance. *See id.* at 921-47 (citing numerous Technical Support Documents such as the BART Screening TSD, BART FIP TSD, Cost TSD, BART Modeling TSD).

In addition to the voluminous technical analyses performed by EPA, the agency solicited public comments for four months, 82 Fed. Reg. 11,516 (Feb. 24, 2017), and held a public hearing in Austin, Texas on the proposed rule, 82 Fed. Reg. at 912. During the comment period, over 3,600 people from Texas, Oklahoma, New Mexico, and Arkansas submitted comments to EPA seeking a final Texas BART Rule as strong as the proposal.<sup>16</sup> Petitioners also submitted detailed comments covering numerous technical and legal issues.<sup>17</sup> Because EPA had not proposed any trading program whatsoever for Texas, nor given any indication that it was considering one in the proposal, Petitioners could not and did not comment on specific defects of the trading program EPA has now purported to finalize.

EPA estimated that its proposed FIP would reduce harmful SO<sub>2</sub> emissions by approximately 194,000 tons per year,<sup>18</sup> which would produce cleaner air in national parks, wilderness areas, and other areas throughout Texas and surrounding states. Twelve of the units proposed for source-specific BART limits have operated for decades without installing any post-combustion controls for SO<sub>2</sub>.<sup>19</sup> EPA’s analysis in the proposed rule indicated that new scrubbers would dramatically improve visibility at a reasonable cost and meet the other BART factors. 82 Fed. Reg. at 926-38. EPA’s analysis also showed that the scrubber upgrades would significantly

---

<sup>16</sup> As of December 15, 2017, EPA has not yet posted all of these comments to the docket.

<sup>17</sup> *See generally* Comments of NPCA and Sierra Club (May 5, 2017), Docket ID No. EPA-HQ-OAR-2016-0611-0083, available at <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0083> (“NPCA/SC Comments”); Comments of Environmental Defense Fund (May 5, 2017), available at <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0081>.

<sup>18</sup> EPA, Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan at 2 (Dec. 2016), Docket ID No. EPA-R06-OAR-2016-0611-0004 (hereinafter, “BART FIP TSD”). Note, EPA explains in its BART FIP TSD (page 2, footnote 7) that this figure is the “[s]um of estimated reductions due to all proposed controls calculated from a baseline of the 2011-2015 five-year average of the SO<sub>2</sub> annual emissions, excluding the maximum and minimum values.” Consequently, we recognize that in comparing it to the 2016 SO<sub>2</sub> emission figure of 218,291 tons that EPA cites in its Trading Rule that we are not making an exact apples-to-apples comparison due to differing emission years and differences in the units covered by the BART proposal and the Trading Rule.

<sup>19</sup> Fayette units 1 and 2 recently installed wet scrubbers. Of the 14 units for which EPA proposed to set BART limits based on the use of new scrubbers, only the two Fayette units have already installed scrubbers.

improve visibility for approximately \$1000 per ton or less, which is a fraction of the cost of most SO<sub>2</sub> BART controls.<sup>20</sup>

The proposed BART limits would have resulted in visibility, public health, and economic benefits for the entire region. Dr. George Thurston, a leading public health expert, submitted evidence that the proposed rule would prevent tens of thousands of asthma attacks, 678 premature deaths, more than 100,000 lost or limited work days every year, and would save more than \$6.7 billion in public health and lost productivity costs annually.<sup>21</sup> These figures were “conservatively estimate[d].”<sup>22</sup> In Oklahoma alone, these benefits total over \$771 million *each year*, including the benefits of preventing over 2,100 asthma attacks, 78 deaths, and more than 9,400 missed work days every year.<sup>23</sup> The annual benefits to Oklahoma City are valued at more than \$185 million, and to Tulsa, at more than \$156 million.<sup>24</sup> In Dallas, the pollution reductions are predicted to save 62 lives per year. The total public health-related benefits for Dallas are valued at over \$623 million.<sup>25</sup> In Houston, the pollution reductions are predicted to save 60 lives per year, with the total health-related benefits valued at over \$606 million.<sup>26</sup>

## 5. *The Trading Rule*

After the change in Administration, and three weeks before the consent decree deadline to issue a final BART rule for Texas, EPA sought a 16-month extension to allow Texas time to develop a state implementation plan that would create a “flexible” sulfur dioxide pollution intrastate trading program, rather than place any emission limits on the plants identified as subject-to-BART in the proposal. EPA further represented that it had entered into a Memorandum of Agreement with Texas under which Texas would develop a state plan incorporating the trading scheme, which EPA would then approve.<sup>27</sup> Agreeing with Petitioners, the district court rejected EPA’s request for more time, noting that “Texas has had ample time to develop, submit, and negotiate a compliant state implementation plan if that was its actual preference.”<sup>28</sup> Thus, EPA was required to issue a final, federal BART action by the consent

---

<sup>20</sup> See NPCA/SC Comments at 34-38.

<sup>21</sup> Report of George D. Thurston Regarding the Public Health Benefits of EPA’s Proposed Rulemaking at 17-18 (May 4, 2017), Docket ID No. EPA-R06-OAR-2016-0611-0072, <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0072> (hereinafter “Thurston Report”).

<sup>22</sup> *Id.* at 17.

<sup>23</sup> *Id.* at 19; Thurston BART BenMap Appendix at Table 2, Docket ID No. EPA-R06-OAR-2016-0611-0072, <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0072> (hereinafter, “Appendix to Thurston Report”).

<sup>24</sup> Thurston Report at 20; Appendix to Thurston Report at Table 3.

<sup>25</sup> Thurston Report at 20.

<sup>26</sup> *Id.*; Appendix to Thurston Report at Table 3.

<sup>27</sup> 82 Fed. Reg. at 48,327.

<sup>28</sup> Order at 7, *Nat’l Parks Conservation Ass’n v. EPA*, No. 1:11-cv-01548 (ABJ) (D.D.C. Aug. 31, 2017) (ECF Doc. 96).

decree's September 2017 deadline (later extended from September 9 to September 30 to accommodate Hurricane Harvey response activities).

The Trading Rule bears no resemblance to the proposed rule. *See generally* 82 Fed. Reg. 48,324. Instead of setting source-specific, technology-based pollution limits for BART sources, EPA created an entirely new trading program that applies only to Texas sources. Having abandoned the source-specific BART proposal in favor of this trading scheme, EPA concluded it was “not necessary to respond” to comments on the proposed source-specific rule. *Id.* at 48,332, 48,333. The emissions trading scheme adopted in the Trading Rule is so complicated that it occupies 17 pages of single-spaced text in the Federal Register, *id.* at 48,364-80, yet not a single sentence of the rule appeared in the proposed rule. This newly invented trading scheme would not result in any emission reductions because the total SO<sub>2</sub> credits available would exceed the total SO<sub>2</sub> emissions that the covered generating units emitted in 2016. *See id.* at 48,358, 48,359, 48,360.

## **EPA MUST CONVENE A RECONSIDERATION PROCEEDING AS TO THE TRADING RULE**

### **I. Petitioners are entitled to reconsideration of the Trading Rule.**

Under the Clean Air Act, the Administrator “shall convene a proceeding for reconsideration of the rule” if a petitioner demonstrates: 1) that it was impracticable to raise the objection during the public comment period or the grounds for the objection arose after the close of the public comment period; and 2) that the objection is of central relevance to the outcome of the rule. 42 U.S.C. § 7607(d)(7)(B). The objections presented in this petition plainly satisfy both requirements. First, the grounds for Petitioners’ objections “arose after the period for public comment,” *id.*, which closed on May 5, 2017.<sup>29</sup> The full grounds for these objections did not arise until, in the Trading Rule published on October 17, 2017, EPA abandoned the BART determinations made in its proposed rule, *see* 82 Fed. Reg. 912, and adopted a new intrastate emissions trading scheme. Additionally, the intrastate trading scheme was not mentioned at all in the January 2017 proposed rule (nor in the December 2014 proposal), and EPA did not even suggest that it was considering such a scheme. Given that Petitioners had no prior notice of the intrastate trading scheme adopted in the Trading Rule, it would have been impracticable for Petitioners to raise these objections during the public comment period.<sup>30</sup>

Second, as explained in detail in Sections II-X below, each of Petitioners’ objections is “of central relevance to the outcome of the rule,” 42 U.S.C. § 7607(d)(7)(B), in that they demonstrate that the Trading Rule is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” *Id.* § 7607(d)(9)(A). For example, Petitioners contend that if EPA had properly applied 40 C.F.R. § 51.308(e)(2), it would have concluded that its intrastate trading

---

<sup>29</sup> *See* 82 Fed. Reg. 11,516 (extending comment period to May 5).

<sup>30</sup> As explained *infra* in Sections IV.B and VI, there are several issues discussed in this petition that were raised with reasonable specificity during the public comment period, such that Petitioners may seek judicial review on those issues under 42 U.S.C. § 7607(d)(7)(B). Petitioners nonetheless discuss those issues in this petition for two reasons: first, to make clear that this intrastate trading scheme, which EPA never proposed, fails numerous regulatory requirements; and second to underscore how thoroughly unlawful the Trading Rule is.

scheme could not be promulgated, because it will achieve less progress toward natural visibility than the installation and operation of BART at these Texas generating units. The same holds true for other deficiencies discussed below—the objections all go to the validity of the approach EPA ultimately adopted without opportunity for comment.

Because both of the Clean Air Act’s prerequisites for reconsideration are met, 42 U.S.C. § 7607(d)(7)(B), EPA “lack[s] discretion not to address the claimed errors.” *North Carolina v. EPA*, 531 F.3d 896, 927 (D.C. Cir. 2008).

## **II. The Trading Rule is unlawful because it was promulgated without following notice and comment requirements.**

In the Trading Rule, EPA adopted a FIP that consists of an intrastate pollution trading program for certain electric generating units in Texas. This Rule violates the Clean Air Act because it was issued without following the Act’s requirements for promulgating a FIP. Under the Act, a FIP can be promulgated only by following the public notice and comment procedures set forth in 42 U.S.C. § 7607(d). *See* 42 U.S.C. § 7607(d)(1)(B), (d)(2)-(6). EPA, however, bypassed these requirements in promulgating the Trading Rule: the agency adopted an entirely new plan, one that never went through the notice and comment process. Because EPA’s adoption of the Trading Rule violates the Clean Air Act, on reconsideration EPA should discard its unlawfully adopted trading scheme and, instead, take final action on the BART proposal published in the proposed rule.

As a threshold matter, Petitioners note that EPA’s failure to follow the Clean Air Act’s notice and comment requirements is the subject of a pending motion in the U.S. District Court for the District of Columbia. *See* Pls.’ Mot. to Enforce Decree, *Nat’l Parks Conservation Ass’n v. EPA*, Civil Action No. 1:11-cv-01548 (ABJ), ECF No. 103 (filed Oct. 13, 2017). This motion seeks to enforce a consent decree provision that required EPA to sign a “notice of final rulemaking promulgating a FIP for Texas to meet the BART requirements for EGUs that were due by December 17, 2007 under EPA’s regional haze regulations.”<sup>31</sup> In their motion, Petitioners explained that because an agency action taken in flagrant violation of notice and comment requirements is not a lawful final action, EPA’s Trading Rule violates the CAA and the consent decree. To remedy EPA’s violations, and to enforce the consent decree, Petitioners requested that the district court direct EPA to promptly promulgate a final rule that complies with notice and comment procedures. EPA opposed this motion, and has argued that the district court lacks jurisdiction to adjudicate it.

Although Petitioners maintain that the Trading Rule is not a final action under the CAA, and that the district court has jurisdiction and authority to order a remedy for EPA’s failure to take final agency action, Petitioners present this objection to EPA out of an abundance of caution. If the district court denies Petitioners’ motion on jurisdictional grounds, EPA would still be obligated to correct its CAA violation. This violation is described further below.

---

<sup>31</sup> Consent Decree ¶ 4.a.ii(a). The text of this consent decree is contained in ECF documents numbers 21, 86, and 91 in *National Parks Conservation Association v. EPA*, Civil Action No. 1:11-cv-01548 (ABJ) (D.D.C.).

### **A. The Clean Air Act's notice and comment requirements**

Under the Clean Air Act, a federal implementation plan cannot be adopted without following the public notice and comment procedures set forth in 42 U.S.C. § 7607(d). *See* 42 U.S.C. § 7607(d)(1)(B), (d)(2)-(6). Among other things, EPA must first publish a proposed rule in the Federal Register that is accompanied by a statement of basis and purpose and specifies a comment period. *Id.* § 7607(d)(3). The statement of basis and purpose must include a summary of the factual data on which the proposed rule is based, the methodology used in obtaining and analyzing the data, and the major legal interpretations and policy considerations underlying the proposed rule. *Id.* EPA must allow any person to submit comments, and in addition, shall give interested persons an opportunity for the oral presentation of data, views, or arguments. *Id.* § 7607(d)(5). These and other public participation requirements in § 7607(d) build on those in the Administrative Procedure Act, and are even more protective of notice and comments rights.

### **B. The Trading Rule circumvents the CAA's notice and comment procedures.**

EPA did not follow the Clean Air Act's notice and comment requirements with respect to the central component of its Trading Rule – the newly invented intrastate trading program. Because EPA never proposed or provided for public comment on this trading scheme, the Trading Rule was not lawfully promulgated under the Clean Air Act.

In the January 2017 proposed rule, EPA established source-specific SO<sub>2</sub> emission limits, that would require the installation and operation of modern SO<sub>2</sub> controls, for Texas generating units that are subject to the Act's mandate for BART. *See generally* 82 Fed. Reg. 912. The BART proposal's SO<sub>2</sub> emission limits would have cut haze-causing pollution from Texas power plants by approximately 194,000 tons compared to recent emission levels.<sup>32</sup>

But in the Trading Rule, EPA abandoned its proposal to require source-specific SO<sub>2</sub> limits, and instead adopted an entirely new intrastate emissions trading program that did not appear in the proposal at all. In contrast to the proposed rule, the Trading Rule would not result in any reduction in haze-causing pollution. In fact, the Trading Rule would allow a potential increase of 74,813 tons above 2016 levels.<sup>33</sup> By adopting a trading program that was never proposed, EPA plainly failed to follow the rulemaking procedures required by the Clean Air Act.

Moreover, any suggestion that the Trading Rule is a “logical outgrowth” of the BART proposal would be meritless. The logical outgrowth doctrine has no application here. Instead, that doctrine applies where a rule merely clarifies its proposal, or where the agency put commenters on notice that it was considering approaches different from the proposal. *See, e.g., Daimler Trucks N. Am. v. EPA*, 737 F.3d 95 (D.C. Cir. 2013) (no logical outgrowth where proposal offered no indication agency was considering change that was ultimately adopted, and

---

<sup>32</sup> BART FIP TSD at 2.

<sup>33</sup> Under the trading program, the maximum annual allowances are 293,104 tons, and actual emissions in 2016 were 218,291 tons. *See* 82 Fed. Reg. at 48,358, 48,360. EPA states that in 2016, the sources covered by the trading program emitted 218,291 tons of sulfur dioxide. *Id.* at 48,358. EPA states that the trading program limits annual emissions from covered sources to between 248,393 and 293,104 tons. *Id.* at 48,359. Therefore, the trading program authorizes covered sources to emit more than they actually emitted in 2016.

where change went beyond mere clarification). Here, the logical outgrowth doctrine does not apply because (i) the intrastate trading scheme is an entirely new program that bears no resemblance to the BART proposal, and (ii) EPA provided no notice that it was considering an intrastate trading program instead of source-specific SO<sub>2</sub> emission limits.

EPA cannot credibly claim that its trading program is just a clarification of the January 2017 proposed rule. The central thrust of the BART proposal was to require source-specific pollution limits based on the best available retrofit technology for each source. In order to adopt its wholly different trading program, EPA had to add dozens of pages of regulatory and explanatory text that appeared nowhere in the BART proposal. *See, e.g.*, 82 Fed. Reg. at 48,353-61, 48,363-80. And the Trading Rule is dramatically different in substance from the BART proposal, so much so, in fact, that EPA said it was “not necessary to respond” to comments on the proposed source-specific rule. *Id.* at 48,333.34 Moreover, instead of requiring limits for each of the relevant plants reflective of the BART controls, which EPA anticipated would reduce sulfur dioxide emissions by approximately 194,000 tons per year below recent levels, EPA is instituting a trading program in which the emissions cap is above the plants’ 2016 emissions.<sup>35</sup>

The record also demonstrates that EPA provided no notice of its intrastate trading program. The proposed rule contained no mention whatsoever of this trading program, much less a summary of the factual data and new legal interpretations on which EPA ultimately relied to justify that program. Nor was there even the slightest suggestion in the proposed rule that EPA might consider adopting an intrastate trading program for Texas in lieu of the source-specific retrofit controls that the proposal set out in detail with extensive justification. *See* 82 Fed. Reg. 912. Indeed, the word “trading” appears nowhere in the BART proposal at all.

Accordingly, the Trading Rule’s adoption of an entirely new program that was not even suggested in the proposal plainly does not qualify as a logical outgrowth. *Env’tl. Integrity Project v. EPA*, 425 F.3d 992, 996 (D.C. Cir. 2005) (logical outgrowth doctrine did not apply where rule was “surprisingly distant” from proposal, as the court has “refused to allow agencies to use the rulemaking process to pull a surprise switcheroo on regulated entities”); *Int’l Union v. Mine Safety and Health Admin.*, 407 F.3d 1250, 1259-60 (D.C. Cir. 2005) (“The ‘logical outgrowth’

---

<sup>34</sup> The Response to Comments document EPA prepared for the Trading Rule indicates the extent to which the action is a completely new rule, never before proposed. For many of the comments submitted on the proposal, EPA responds that the comment is no longer relevant, because the Trading Rule adopts a scheme that does not implicate the issues the commenter raised. *See, e.g.*, Modeling Response to Comments at 19, Docket ID No. EPA-R06-OAR-2016-0611-0088, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0088> (noting that because EPA is not finalizing the source-specific rule it had proposed, “[t]herefore, comments concerning the emissions utilized in our subject to BART modeling for the sources participating in the SO<sub>2</sub> trading program are no longer relevant”); *id.* at 28 (comment raised by company regarding the BART proposal “is no longer relevant” given the trading plan EPA adopted).

<sup>35</sup> Note: the projected reduction of 194,000 tons of SO<sub>2</sub> emissions in the BART proposal is relative to a 2011-15 baseline. *See* BART FIP TSD at 2 n.7. Because the 74,813-ton figure mentioned on the preceding page is a comparison between the Trading Rule’s allowance emissions and 2016 emissions, that figure cannot be directly compared to the 194,000-ton figure.



doctrine does not extend to a final rule that is a brand new rule . . . nor does it apply where interested parties would have had to divine the Agency’s unspoken thoughts.”).

Nor can EPA claim that the Trading Rule is a logical outgrowth of the December 2014 proposed rule, 79 Fed. Reg. 74,818. That proposal, which predated *Homer City II*, said nothing about an intrastate trading program – it was neither proposed nor an issue that EPA invited comment upon. Consequently, any logical outgrowth argument based on that proposal would be baseless.<sup>36</sup>

Any attempt to characterize the Trading Rule as a logical outgrowth of the December 2014 proposed rule would also fail because that rulemaking had been completed before the instant rulemaking even commenced. The BART provisions in the December 2014 proposed rule were abandoned due to *Homer City II*, and EPA otherwise took final action on that proposed rule in December 2015. *See* 81 Fed. Reg. at 298-307 (summary of final actions). Notably, when EPA opened up a public comment period following its promulgation of the January 2017 BART proposal, the agency did not invite comments on the since-abandoned December 2014 proposal. Instead, EPA sought comments on the proposal it had just released – i.e., the January 2017 proposed rule.<sup>37</sup>

---

<sup>36</sup> In the Trading Rule, EPA implies that its adoption of the trading program was justified because two Texas state agencies and two power companies filed comments advocating such an approach. 82 Fed. Reg. at 48,327. To be clear, these comments, and EPA’s rationale for its adoption of the Trading Rule, have no bearing on whether this rule is a logical outgrowth of the BART proposal. The fact that commenters advocated for a wholly different approach than proposed did not provide any notice to the public that the agency itself was proposing or even considering such an approach. Indeed, the D.C. Circuit has “made clear that the fact that some commenters actually submitted comments addressing the final rule is of little significance. The agency must *itself* provide notice of a regulatory proposal.” *Ass’n of Private Sector Colleges v. Duncan*, 681 F.3d 427, 462 (D.C. Cir. 2012) (citation omitted) (internal quotation marks omitted).

Nor is EPA’s complete disregard of the required notice and comment procedures cured by Petitioner Sierra Club and NPCA’s comments against “relying on a BART alternative such as the C[ross] S[tate] A[ir] P[ollution] R[ule] trading program.” NPCA/SC Comments at 17. While EPA certainly should have considered these comments and responded to them in the context of the Trading Rule, these Petitioners still lacked an opportunity to comment on information that only became apparent in the Trading Rule – such as the specifics of EPA’s intrastate trading scheme or the absence of any coherent rationale for adopting that scheme. NPCA and Sierra Club submitted comments on BART alternatives solely in response to industry comments at the January 10, 2017 public hearing, and to industry comments on the proposal to withdraw Texas from CSAPR. *See, e.g.*, Transcript of January 10, 2017 Public Hearing on EPA’s Clean Air Plan Proposal for Texas Regional Haze at 22, Docket ID No. EPA-R06-OAR-2016-0611-0057, available at <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0057>. The comments were not based on, or responding to, any actual or implied proposal by EPA itself to adopt such an alternative.

<sup>37</sup> That the December 2014 proposal was part of a different rulemaking process is further confirmed by the fact that EPA did not include that proposal or any of the supporting technical analysis *in this docket* “on the date of the publication of the proposed rule,” as required by the Clean Air Act. 42 U.S.C. § 7607(d)(3); *see also id.* § 7607(d)(4)(B)(ii) (all drafts of the proposed rule “shall be placed in the docket no later than the date of proposal of the rule”). Thus, if the Trading Rule had been a logical outgrowth of this earlier proposal (which it wasn’t), the Rule would necessarily violate these CAA provisions.

By circumventing the Clean Air Act's notice and comment procedures, EPA's adoption of the Trading Rule also violated the Act's requirement that a rule "be accompanied by a response to each of the significant comments, criticisms, and new data submitted in written or oral presentations during the comment period." *Id.* § 7607(d)(6)(B). EPA violated this requirement by failing to respond to Petitioners' comments, such as Petitioners' discussion explaining that CSAPR is not better than BART. The agency had a clear duty to respond to such comments. This is especially so given the Trading Rule's implicit reliance on CSAPR in purporting to justify the trading scheme.<sup>38</sup> But EPA failed to respond to Petitioners' comments, asserting that such comments were beyond the scope of this rulemaking.<sup>39</sup> EPA's disregard of this statutory requirement represents an independent violation of the CAA.

By failing to follow the Clean Air Act's notice and comment requirements, EPA committed multiple violations of the Act. To the extent these violations could be characterized as procedural,<sup>40</sup> they amply meet the criteria set forth in 42 U.S.C. § 7607(d)(9)(D) for reversal based on procedural violations. First, EPA's violations were arbitrary and capricious. *See* 42 U.S.C. § 7607(d)(9)(D)(i). In the Trading Rule, EPA adopted an entirely new trading program

---

<sup>38</sup> *See, e.g.*, 82 Fed. Reg. at 48,330 ("The BART alternative is designed to achieve SO<sub>2</sub> emission levels from Texas sources similar to the SO<sub>2</sub> emission levels that would have been achieved under CSAPR."); *id.* ("Accordingly, by the measure of CSAPR better than BART, the SO<sub>2</sub> BART FIP for Texas' BART-eligible EGUs participating in the trading program will achieve greater reasonable progress than BART with respect to SO<sub>2</sub>.").

<sup>39</sup> *See, e.g.*, 82 Fed. Reg. at 48,338 ("This comment in its discussion of the 2016 sensitivity analysis and other particulars raises issues that are addressed in the record for that separately finalized action. This comment falls outside of the scope of our action here."); *id.* at 48,335; Legal Response to Comments (Sept. 2017) ("Legal RTC") at 6, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0087> ("The legal and technical determinations of the CSAPR-Better-than-BART rule are subject to judicial review under existing challenges and a separate administrative record, as indicated by the comment. Any challenges raised with regard to the present rulemaking and outside that litigation may be time-barred or directed to the wrong forum. As such, we do not believe that the incorporation of arguments from a brief filed with the D.C. Circuit concerning a separate regulatory determination warrants responses here, in this rulemaking, and that to offer responses here would suggest some basis for collateral, time-barred arguments that are out of the scope of this action."); Legal RTC at 8 ("With regard to the application of CSAPR SO<sub>2</sub> budgets in the finalized BART alternative, we note that the alternative does not 'set a higher (more lenient) SO<sub>2</sub> budget for Texas' and it does not authorize sources 'to emit more SO<sub>2</sub> than they were authorized to emit under the original CSAPR rule.' Thus, the assumptions that the comment suggests would be no longer valid remain valid. Because our allocations conform to the original CSAPR Rule, we decline to reanalyze whether CSAPR makes greater reasonable progress than BART with our SO<sub>2</sub> BART alternative.").

In failing to respond to Petitioners' comments, EPA also reneged on its commitment to "provide written responses to all significant oral and written comments received on our [BART] proposal." 82 Fed. Reg. at 912.

<sup>40</sup> EPA's failure to follow the Clean Air Act's rulemaking procedures is not only a procedural violation; it is also substantive, because EPA has unlawfully adopted an intrastate trading scheme that would eviscerate the strong BART emission limits of the proposed rule. Because the Trading Rule is not a lawful action, and is not even a final agency action, Petitioners need not make a showing under 42 U.S.C. § 7607(d)(9)(D). Petitioners make this showing as purely as a protective matter.

that was never proposed, and of which Petitioners had no notice. This blatant disregard of the Act's notice and comment procedures is unlawful, arbitrary, and capricious. Second, in filing the present petition, Petitioners have satisfied § 7607(d)(9)(D)(ii). Third, EPA's violations "were so serious and related to matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been significantly changed if such errors had not been made." *See id.* § 7607(d)(8) (cited in *id.* § 7607(d)(9)(D)(iii)). If EPA had obeyed the law by following notice and comment procedures, it would have learned of the serious substantive objections detailed below – objections demonstrating that the Trading Rule contravenes CAA requirements (including 42 U.S.C. § 7491 and the Regional Haze Rule), and is otherwise arbitrary and capricious. There is thus a substantial likelihood that the rule would have been significantly different if EPA had not made the errors identified by Petitioners. Petitioners therefore satisfy the requirements of 42 U.S.C. § 7607(d)(9)(D).

### **III. EPA provided no rational basis for abandoning the BART proposal in favor of the Trading Rule.**

One of the key requirements of the Clean Air Act is that, in promulgating a rule, EPA must provide "an explanation of the reasons for any major changes in the promulgated rule from the proposed rule." 42 U.S.C. § 7607(d)(6)(A)(ii). The Trading Rule violates this requirement because EPA failed to adequately explain its decision to scrap the BART proposal's strong, source-specific SO<sub>2</sub> emission limits in favor of an intrastate emissions trading scheme.

In the proposed rule, EPA proposed source-by-source BART determinations for generating units in Texas subject to BART. Those determinations apply the five-factor BART analysis to those generating units.<sup>41</sup> Consequently, the BART proposal is supported by, *inter alia*, detailed, source-specific analyses of the cost of SO<sub>2</sub> controls, the level of control achievable by different technologies, estimated emissions reductions, and projected visibility improvement from operation of such controls. *See generally* BART FIP TSD; *see also* 82 Fed. Reg. at 921-45.

In the Trading Rule, EPA does not question the validity and rigor of any of these source-specific analyses. Nor does EPA claim that any aspect of its BART proposal was flawed. EPA identified no errors in the BART proposal, and did not even respond to most of the comments submitted on the proposal.<sup>42</sup> And EPA does not even attempt to demonstrate that the intrastate trading program would achieve greater reasonable progress than the source-specific BART

---

<sup>41</sup> BART is defined as "an emission limitation based on the degree of reduction achievable through the application of the *best* system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility." 40 C.F.R. § 51.301 (emphasis added). When determining BART, the states and EPA must analyze "the best system of continuous emission control technology available" by taking into consideration five factors: (1) the costs of compliance, (2) the energy and non-air quality environmental impacts of compliance, (3) existing pollution controls at the source, (4) the remaining useful life of the source, and (5) the degree of visibility improvement from pollution controls. *Id.* § 51.308(e)(1)(ii)(A).

<sup>42</sup> *See, e.g.*, 82 Fed. Reg. at 48,352 ("We are not finalizing our evaluation of whether individual sources are subject to BART. As a consequence, we believe that it is not necessary to respond to the merits of comments concerning source-specific visibility benefits of controls on these units, because we are not finalizing requirements based on those controls.").

required under the proposed rule. The Trading Rule assiduously avoids making comparisons between the BART proposal and the intrastate trading scheme.<sup>43</sup>

EPA's only rationale for concocting this intrastate trading program is that it was suggested by some commenters, including the State of Texas, and EPA gave "particular weight" to the State's views. *See, e.g.*, 82 Fed. Reg. at 48,333 ("Due to the comments we received requesting a BART alternative in lieu of source-specific BART determinations, we are finalizing an intrastate SO<sub>2</sub> trading program as an alternative to source-by-source BART and to meet the interstate visibility transport requirements."); *id.* at 48,327. This rationale does not satisfy the CAA's mandate that a rule must include "an explanation of the reasons for any major changes in the promulgated rule from the proposed rule." 42 U.S.C. § 7607(d)(6)(A)(ii). By failing to provide *any* explanation for why this trading program is purportedly better than the proposed rule's source-specific BART determinations, EPA has violated the Act.

EPA also never explained why it was appropriate to give greater weight to some comments than to others—i.e., why the agency followed the State's and Luminant's suggestion while rejecting other commenters' recommendation to finalize the January 2017 BART proposal. *See, e.g.*, NPCA/SC Comments at 26-40 (explaining why EPA should finalize its source-specific determinations for SO<sub>2</sub> BART). EPA received comments from all sides of this issue, so it had a duty to explain why it acted on some comments and rejected others.

EPA's suggestion, that the State's request for a trading program justifies abandonment of the proposed rule's source-specific BART determinations, is particularly misplaced. The Clean Air Act does establish a cooperative state-federal framework, but the fact that states have responsibilities under the Act does not empower EPA to jettison CAA requirements simply because a state expressed its "views," 82 Fed. Reg. at 48,327. *See, e.g.*, 81 Fed. Reg. at 308 ("[O]ur review of SIPs is not limited to a ministerial review and approval of a state's decisions . . . [T]he CAA directs us to act if a state fails to submit a SIP, submits an incomplete SIP, or submits a SIP that does not meet the statutory requirements. Thus, the CAA provides us with a critical oversight role in ensuring that SIPs meet the CAA's requirements."); *Oklahoma v. EPA*, 723 F.3d 1201, 1223 (10th Cir. 2013) ("Once the EPA issued findings that Oklahoma failed to submit the required SIP under the Regional Haze Rule, the EPA had an obligation to promulgate a FIP. The statute itself makes clear that the mere *filing* of a SIP by Oklahoma does not relieve the EPA of its duty."). The State of Texas is free to submit a proposed SIP for EPA's review, and such SIP could ultimately be adopted if it meets CAA requirements. (Indeed, the BART proposal made clear that EPA would "work with the State . . . if it chooses to develop a SIP to meet these overdue Regional Haze requirements and replace or avoid a finalized FIP." 82 Fed.

---

<sup>43</sup> EPA tries to downplay the significance of its BART proposal, stating its disagreement with the notion "that merely proposed determinations of BART in the context of a possible FIP set a stringency threshold for a demonstration set forth in a hypothetical SIP," and arguing that "[p]roposed determinations are only proposals." 82 Fed. Reg. at 48,336. In doing so, however, the agency ignores the fact that the BART proposal's technical analyses were not questioned at all in the Trading Rule. EPA cannot simply sweep away the exhaustive findings it made in the proposed rule. *See, e.g., U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 650 (D.C. Cir. 2016) (holding that "[b]ecause its justifications for the final rule contradict earlier findings, the EPA must provide some reasoning to explain why its final decision runs counter to the evidence before the agency") (citations omitted).

Reg. at 915.) But, to date, Texas has not done so, and the possibility of a future SIP does not affect EPA's *present* obligation to take final action on the BART proposal.<sup>44</sup>

#### **IV. The Trading Rule fails to satisfy the requirement that a BART alternative achieve greater reasonable progress than BART.**

The Trading Rule is unlawful, arbitrary, and capricious because it fails the regulatory requirement that a BART alternative “achieve greater reasonable progress than would be achieved through the installation and operation of BART.” 40 C.F.R. § 51.308(e)(2). EPA has conducted multiple analyses demonstrating that BART would reduce SO<sub>2</sub> emissions from Texas generating units far more than would CSAPR, and the Trading Rule is even more lenient than CSAPR. This is true regardless of whether presumptive BART, or the more stringent source-specific BART in the proposed rule, is used as the benchmark for comparing the Trading Rule. Because the Trading Rule would not achieve greater reasonable progress than BART, the trading scheme violates 40 C.F.R. § 51.308(e)(2), and must be withdrawn and replaced with a lawful rule.

##### **A. The clear weight of evidence demonstrates that the trading program will not make greater reasonable progress than BART.**

The clear weight of evidence demonstrates that the Trading Rule would not achieve greater reasonable progress than would be achieved through BART, 40 C.F.R. § 51.308(e)(2). EPA claims that “this BART alternative will result in SO<sub>2</sub> emissions from Texas EGUs that will be similar to emissions anticipated under CSAPR.” 82 Fed. Reg. at 48,327. But EPA has already determined that CSAPR would not achieve anywhere near the emissions reductions that source-specific BART would achieve in Texas. Indeed, the agency has done so in three separate rulemakings.

---

<sup>44</sup> The violations described in this Section are substantive, both because 42 U.S.C. § 7607(d)(6)(A)(ii) only applies when a promulgated rule has “major changes” from the proposed rule, and because EPA’s failure to provide “an explanation of the reasons for any major changes” means that the Trading Rule itself is incomplete and legally deficient. Petitioners therefore need not make a showing under § 7606(d)(9)(D).

But, to the extent the violations described in this Section could be characterized as procedural, they easily satisfy the criteria set forth in 42 U.S.C. § 7607(d)(9)(D) for reversal based on procedural violations. First, EPA’s violations were arbitrary and capricious. *See id.* § 7607(d)(9)(D)(i). In the Trading Rule, EPA utterly failed to meet the requirements of 42 U.S.C. § 7607(d)(6)(A)(ii). This blatant disregard of a CAA requirement is unlawful, arbitrary, and capricious. Second, in filing the instant petition, Petitioners have satisfied § 7607(d)(9)(D)(ii). Third, EPA’s violations “were so serious and related to matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been significantly changed if such errors had not been made.” *See id.* § 7607(d)(8) (cited in *id.* § 7607(d)(9)(D)(iii)). If EPA had complied with § 7607(d)(6)(A)(ii), the agency would have been forced to grapple with the legal shortcomings of the Trading Rule, including the Rule’s promulgation without following notice and comment procedures, and the fact that EPA’s intrastate trading scheme would achieve less reasonable progress than the installation and operation of BART. There is thus a substantial likelihood that the Trading Rule would have been significantly different if EPA had not made the errors identified by Petitioners. Petitioners therefore satisfy the requirements of 42 U.S.C. § 7607(d)(9)(D).

*First*, in the January 2017 BART proposal, EPA determined that source-specific BART would reduce SO<sub>2</sub> emissions by approximately 194,000 tons per year, “a larger reduction than projected under CAIR or CSAPR.” BART FIP TSD at 2. According to EPA, the source-specific BART proposal “achieves reductions at large sources of SO<sub>2</sub> emissions (e.g., Monticello, Martin Lake and Big Brown), that have significant impacts on Class I areas in nearby states.” *Id.*

The BART proposal was the culmination of years of technical work by EPA staff. EPA sent two rounds of information requests to the facilities subject to BART in order to gather source-specific data. *Id.* at 12-21. Using the responses to EPA’s information requests, as well as other data reported to EPA and other agencies, EPA considered each of the five statutory BART factors for each source. *See, e.g., id.* at 25-78. EPA’s detailed analyses span hundreds of pages, in several technical support documents and other documents. And after completing those analyses, EPA ultimately concluded that CSAPR would achieve *less* reasonable progress than the installation and operation of BART. *Id.* at 2. Given that EPA expects SO<sub>2</sub> emissions under the Trading Rule to be similar to emissions under CSAPR, 82 Fed. Reg. at 48,327, EPA’s analysis shows that the Trading Rule, like CSAPR, would improve visibility less than would BART. For this reason alone, the Trading Rule violates 40 C.F.R. § 51.308(e)(2).<sup>45</sup>

*Second*, in the original Better-than-BART rulemaking, EPA found that CSAPR would result in higher SO<sub>2</sub> emissions than presumptive BART for Texas sources. Specifically, EPA concluded that Texas sources would emit 139,300 tons of SO<sub>2</sub> if presumptive BART limits were required, but would emit nearly double that amount, 266,600 tons, under CSAPR.<sup>46</sup> EPA later increased Texas’ SO<sub>2</sub> budget by 50,517 tons. 81 Fed. Reg. at 78,963 n.58. As a result, Texas’ allowed emissions under CSAPR were 316,517 tons, over double the emissions under EPA’s 2011 analysis of presumptive BART.

By allowing higher SO<sub>2</sub> emissions, CSAPR would result in less visibility improvement than under BART. When EPA increased Texas’ SO<sub>2</sub> budget by 50,517 tons, the agency conducted sensitivity analyses of its visibility modeling for the Better-than-BART Rule to account for significant changes to CSAPR.<sup>47</sup> However, it did not present detailed information on the visibility impacts from Texas emission sources on the Class I areas impacted by Texas’ emissions. Using EPA’s own methodology, we have done just that, which we summarize in

---

<sup>45</sup> It is important to note that EPA has not revised, or even questioned, any aspect of the technical analysis of source-specific BART that EPA conducted for the January 2017 BART proposal. And EPA cannot simply ignore its own technical analyses, because the agency failed to identify any errors in those technical analyses.

<sup>46</sup> *See* EPA, Technical Support Document for Demonstration of the Transport Rule as a BART Alternative at 10, Table 2-4 (Dec. 2011), Docket ID No. EPA-HQ-OAR-2011-0729-0014, *available at* <https://www.regulations.gov/document?D=EPA-HQ-OAR-2011-0729-0014>.

<sup>47</sup> *See* CSAPR BART Sensitivity Memo at Table 2.

Table 1 below.<sup>48</sup> This update of EPA’s analysis indicates that BART achieves greater overall visibility improvement<sup>49</sup> than CSAPR.

In particular, Table 1 shows that even before EPA increased Texas’ SO<sub>2</sub> budget by 50,157 tons, presumptive BART would have achieved greater aggregate visibility improvement than CSAPR on the 20% best days. And after EPA increased Texas’ SO<sub>2</sub> budget, the results indicate that presumptive BART would have achieved more visibility improvement in the aggregate than CSAPR on the 20% worst days as well.

**Table 1: Updated Version of EPA’s Comparison of Visibility Improvement Under CSAPR vs. BART at Texas Sources<sup>50</sup>**

Class I Area Name	State	20 % Best Days Visibility Improvement (dv)				20 % Worst Days Visibility Improvement (dv)			
		CSAPR + BART-elsewhere	CSAPR + BART-elsewhere after EPA Adjustment	BART - 2014 Base Case	Better Visibility under BART before or after EPA Adjustment?	CSAPR + BART-elsewhere	CSAPR + BART-elsewhere after EPA Adjustment	BART - 2014 Base Case	Better Visibility under BART before or after EPA Adjustment?
Big Bend NP	TX	0.2	0.15	0.2	Y – After	1.1	0.80	1.0	Y – After
Caney Creek Wilderness	AR	0.4	0.29	0.6	Y – Before	3.2	2.34	2.2	N
Carlsbad Caverns NP	TX	0.1	0.07	0.1	Y – After	0.9	0.66	0.8	Y – After
Guadalupe Mountains NP	TX	0.1	0.07	0.1	Y – After	0.9	0.66	0.8	Y – After
Hercules-Glades Wilderness	MO	0.6	0.44	0.8	Y – Before	2.5	1.83	1.7	N

<sup>48</sup> The visibility information in Table 1 is taken from EPA’s CSAPR better-than-BART demonstration, which EPA relies on to justify the Trading Rule. *See, e.g.*, 82 Fed. Reg. at 48,330, 48,342.

<sup>49</sup> We refer here to an overall improvement in visibility, or aggregate visibility improvement, to follow the same methodology that EPA used in the Better-than-BART Rule (as well as updates to that Rule). In purporting to demonstrate that CSAPR achieves greater reasonable progress than BART, EPA relies on 40 C.F.R. § 51.308(e)(3)(ii), which requires that “[t]here is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas.”

<sup>50</sup> Table 1 is an updated version of the analysis contained in EPA’s CSAPR BART Sensitivity Memo. To generate the table, we used EPA’s methodology to correct the “CSAPR +BART Elsewhere” columns to reflect the additional 50,157 tons per year SO<sub>2</sub> added to Texas’ CSAPR budget. We did this by applying the 0.73 proportionality constant EPA calculated in the CSAPR BART Sensitivity Memo to the 20% best and worst days. This analysis is presented in the spreadsheet attached as Exhibit B.

Salt Creek	NM	0.1	0.07	0.2	Y – Before	0.7	0.51	0.7	Y – After
Upper Buffalo Wilderness	AR	0.5	0.37	0.6	Y – Before	2.5	1.83	1.4	N
White Mountain Wilderness	NM	0.1	0.07	0.2	Y – Before	0.6	0.44	0.5	Y – After
Wichita Mountains	OK	0.2	0.15	0.2	Y – After	1.6	1.17	1.2	Y – After
<b>Totals</b>		<b>2.3</b>	<b>1.7</b>	<b>3.0</b>		<b>14.0</b>	<b>10.2</b>	<b>10.3</b>	

The “CSAPR + BART Elsewhere” columns represent the change in deciviews (“dv”) due to the effects of CSAPR within the transport region and source-by-source BART outside that region (elsewhere). The next columns use EPA’s methodology to correct the “CSAPR + BART Elsewhere” columns for the additional 50,157 tons per year SO<sub>2</sub> added to Texas’ budget. This is done by applying the 0.73 proportionality constant EPA calculated in the CSAPR BART Sensitivity Memo to the 20% best and worst days. The next columns represent the BART base case modeling. The last columns indicate whether better visibility resulted from BART or CSAPR before or after the application of the 0.73 proportionality constant.<sup>51</sup> The “Totals” row indicates that the overall visibility improvement from BART on the 20% best days (3 dv) exceeds that from CSAPR (1.7 dv), and similarly the improvement from BART on the 20% worst days (10.3 dv) exceeds that from CSAPR (10.2 dv).

*Third*, during the rulemaking to remove Texas from CSAPR’s SO<sub>2</sub> trading program – published on the same day that the Trading Rule was signed – EPA yet again confirmed that SO<sub>2</sub> emissions under BART would be dramatically lower than under CSAPR. Specifically, EPA found that requiring Texas sources to install BART would reduce SO<sub>2</sub> emissions by between 127,300 and 177,800 tons relative to emissions under CSAPR. 81 Fed. Reg. at 78,963. EPA concluded that removing Texas sources from CSAPR and requiring them to install BART controls would “improv[e] projected air quality in this scenario relative to projected air quality in both the Nationwide BART scenario and the base case scenario (in which the projected SO<sub>2</sub> emissions from Texas EGUs would not change).” *Id.*

In short, in three separate rulemakings—the January 2017 BART proposal, the Better-than-BART rulemaking, and the withdrawal of Texas from CSAPR rulemaking—EPA has found that CSAPR results in higher SO<sub>2</sub> emissions from Texas generating units than does BART. This remains true regardless of whether CSAPR is compared to presumptive BART or source-specific BART.<sup>52</sup> As shown in Table 1 above, these significantly higher emissions translate into greater

<sup>51</sup> Prior to correcting for the additional 50,157 tons per year of SO<sub>2</sub>, some of the Class I Areas experienced better visibility improvement for the 20% best days under source-by-source BART than under CSAPR. These are represented as “Y-before.” By contrast, after correcting for the additional 50,157 tons per year of SO<sub>2</sub>, some of the Class I Areas experienced better visibility improvement for the 20% worst days under source-by-source BART than under CSAPR. These are represented as “Y-after.”

<sup>52</sup> While we have mentioned EPA’s original and updated Better than BART analyses, and updated such analyses in Table 1, Petitioners do not agree that presumptive BART is the appropriate benchmark to use in an analysis of whether an alternative makes greater reasonable progress than BART. We refer to EPA’s use of presumptive BART in the Better than BART analyses only to point out that even



visibility impairment in the region's Class I areas. EPA's own analyses therefore refute the agency's claim that the Trading Rule, which allows "SO<sub>2</sub> emissions from Texas EGUs . . . similar to emissions anticipated under CSAPR," 82 Fed. Reg. at 48,327, would achieve greater reasonable progress than BART. Contrary to EPA's claims, *see* 82 Fed. Reg. at 48,327, 48,336, the "clear weight of evidence" demonstrates that the intrastate trading program will achieve *less* reasonable progress than BART. The Trading Rule therefore violates 40 C.F.R. § 51.308(e)(2)(i)(E).<sup>53</sup>

**B. EPA unlawfully failed to compare the intrastate trading program to BART, and instead compared the trading program to CSAPR.<sup>54</sup>**

A BART alternative cannot be approved unless there is a demonstration that the alternative would achieve greater reasonable progress than BART. 40 C.F.R. § 51.308(e)(2). This demonstration "must be based on," among other things, "[a]n analysis of the best system of continuous emission control technology available and associated emission reductions achievable for each source within the State subject to BART and covered by the alternative program." *Id.* § 51.308(e)(2)(i)(C). The Trading Rule fails to include an analysis of BART at each source that is subject to BART and covered by the trading scheme, as required by 40 C.F.R. § 51.308(e)(2)(i)(C).

The Regional Haze Rule specifies how BART must be analyzed for the purpose of determining whether an alternative makes greater reasonable progress than BART. BART "must" be analyzed "as provided for in paragraph (e)(1) of this section," which describes the five

---

presumptive BART achieves greater reasonable progress than CSAPR—and, by extension, the even more permissive Trading Rule—in Texas. For the Trading Rule, EPA should have compared visibility improvement under the Trading Rule versus source-specific BART limits. In addition, while in Table 1 we update EPA's approach to assessing visibility impacts, we do not support that approach. To accurately compare visibility impacts from the Trading Rule and BART, EPA must conduct new modeling.

<sup>53</sup> Finally, EPA failed to follow its own regulations for determining whether the clear weight of evidence demonstrates that an alternative achieves greater reasonable progress than BART. In revising the regulations governing BART alternatives, EPA specified a three-step process for making a weight of the evidence determination: (1) Use information and data that can inform the decision; (2) Recognize the relative strengths and weaknesses of the information; and (3) Carefully consider all the information to reach a conclusion. 71 Fed. Reg. 60,612, 60,622 (Oct. 13, 2006); *see also* 81 Fed. Reg. 43,894, 43,896 (July 5, 2016). The Trading Rule does not even mention, much less follow, this three-step process, and therefore EPA has unlawfully failed to follow its own regulations for how to make a clear weight of evidence determination under 40 C.F.R. § 51.308(e)(2).

<sup>54</sup> In comments on the proposed rule, Petitioners NPCA and Sierra Club argued that if EPA were to consider any BART alternative, EPA would have to compare the visibility improvement from the alternative program to the improvement from source-specific BART. *See* NPCA/SC Comments at 25-26. EPA responded that it does not agree that the BART Proposal is the benchmark for judging an alternative program. 82 Fed. Reg. at 48,336. Having raised this objection with reasonable specificity during the public comment period, Petitioners may seek judicial review on this issue under 42 U.S.C. § 7607(d)(7)(B). Nonetheless, in seeking reconsideration of the Trading Rule, Petitioners discuss this issue here to clarify that *this* intrastate trading scheme does not satisfy 40 C.F.R. § 51.308(e)(2)-(3), and to highlight yet another fatal flaw in the Trading Rule.

factors that must be considered for each source, “unless the emissions trading program or other alternative measure has been designed to meet a requirement other than BART (such as the core requirement to have a long-term strategy to achieve the reasonable progress goals established by States).” 40 C.F.R. § 51.308(e)(2)(i)(C). If that exception applies, the state can determine BART “for similar types of sources within a source category based on both source-specific and category-wide information, as appropriate.” *Id.*

EPA claims that because its trading program has been “designed to meet multiple requirements other than BART,” 82 Fed. Reg. at 48,356—namely, the interstate transport requirements and the long-term strategy provisions—the agency does not have to analyze BART. EPA is wrong on both counts: the trading program was not designed to meet requirements other than BART; and even if it were, that would merely allow the agency to analyze BART on a category-wide basis, and would not relieve EPA of the obligation to analyze BART altogether.

### **1. The trading scheme is not designed to meet requirements other than BART.**

EPA’s claim that the Trading Rule was designed to meet requirements other than BART has no merit. First, EPA cannot credibly claim that the trading program was “designed to” meet the Clean Air Act’s visibility transport requirements, because EPA has not made any determination of the trading program’s visibility impacts on other states. To support the notion that the Trading Rule was designed to meet interstate visibility transport requirements, *see* 82 Fed. Reg. at 48,332, EPA cites a 2013 guidance document<sup>55</sup> stating that states can meet such requirements by pointing “to measures that limit visibility-impairing pollutants and ensure that the resulting reductions conform with any mutually agreed emission reductions under the relevant regional haze regional planning organization (RPO) process.” *Id.*

Here, the regional planning process for Texas and surrounding states was conducted more than a decade ago, and assumed that states would implement CAIR. EPA argues that because the Trading Rule would reduce more emissions than CAIR, the Rule achieves the emission reductions that other states and Texas agreed Texas would achieve, and therefore the Rule is designed to satisfy the interstate visibility transport requirements. 82 Fed. Reg. at 48,332. This argument has no merit. EPA cannot use CAIR as the benchmark for whether the interstate visibility transport requirements are met, given that CAIR was invalidated years ago by the D.C. Circuit, *North Carolina v. EPA*, 531 F.3d 896, 903 (D.C. Cir. 2008), and has been replaced by CSAPR, 76 Fed. Reg. 48,208. Moreover, EPA disapproved Texas’ regional haze plan precisely because it relied on CAIR. 77 Fed. Reg. 33,642. It is arbitrary and capricious for EPA to now turn around and claim that interstate visibility transport requirements are satisfied because the emissions reductions in CAIR will be achieved. Further, as noted above, EPA provides no support for its claim that the emission levels assumed in the CENRAP modeling are sufficient to assure that Texas’ emissions do not interfere with other states’ visibility plans.

---

<sup>55</sup> EPA, “Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and (2)” (Sept. 2013), Docket ID No. EPA-R06-OAR-2016-0611-0104, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0104>.

Nor can EPA bypass the source-specific analyses required by 51.308(e)(2)(i)(C) by simply asserting that its trading scheme was “designed to be part of the long-term strategy [] to meet [] reasonable progress requirements.” 82 Fed Reg. at 48,356. The “long-term strategy must include enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the reasonable progress goals established by States having mandatory Class I Federal areas.” 40 C.F.R. § 51.308(d)(3). Given that the long-term strategy consists of all the measures in a regional haze plan, EPA’s assertion that BART requirements are designed to meet the long-term strategy requirements would mean that the exception would swallow the rule in 40 C.F.R. § 51.308(e)(2)(i)(C). EPA’s claim that the BART Rule is somehow designed to meet the reasonable progress requirements is also contradicted by EPA’s statement elsewhere in the Rule that it is not taking action on the reasonable progress elements that the Fifth Circuit remanded to the agency. 82 Fed. Reg. at 48,332 (“However, the EPA is not determining at this time that this final action fully resolves the EPA’s outstanding obligations with respect to reasonable progress that resulted from the Fifth Circuit’s remand of our reasonable progress FIP. We intend to take future action to address the Fifth Circuit’s remand.”).

**2. Even if the trading program were designed to meet requirements other than BART, EPA has unlawfully failed to analyze BART for sources subject to BART and covered by the trading program.**

Even if the Trading Rule were designed to meet requirements other than BART—which it is not—EPA would still have violated 40 C.F.R. § 51.308(e)(2)(i)(C) by failing to analyze BART for the sources subject to BART and covered by the trading program. If a state seeks to adopt an alternative to BART, “[f]or all such emission trading programs or other alternative measures,” the state “must” submit “[a]n analysis of the best system of continuous emission control technology available and associated emission reductions achievable for each source within the State subject to BART and covered by the alternative program.” 40 C.F.R. § 51.308(e)(2)(i)(C). There is no exception to this requirement.

Instead, the Regional Haze Rule provides an exception to the default rule for *how* BART must be analyzed. The default rule is that BART must be analyzed “as provided for in paragraph (e)(1),” *id.*, meaning that each of the five statutory BART factors must be analyzed for each BART source. But if “the emissions trading program or other alternative measure has been designed to meet a requirement other than BART . . . the State may determine the best system of continuous emission control technology and associated emission reductions for similar types of sources within a source category based on both source-specific and category-wide information, as appropriate.” *Id.*

Here, assuming that the trading program is designed to meet a requirement other than BART, that merely authorizes EPA to analyze BART based on “category-wide information” in addition to source-specific information. It does not relieve EPA of the obligation to analyze BART at all. EPA made this clear in the preamble to the rule adding this provision to the Regional Haze Rule, in which EPA explained that its goal was to allow states to use simplifying assumptions to calculate BART for comparison purposes, not to eliminate altogether the obligation to analyze BART:

States should have the ability to develop a BART benchmark based on simplifying assumptions as to what the most-stringent BART is likely to achieve. The regulations finalized today therefore provide that where an emissions trading program has been designed to meet a requirement other than BART, including the reasonable progress requirement, the State may establish a BART benchmark based on an analysis that includes simplifying assumptions about BART control levels for sources within a source category.

71 Fed. Reg. at 60,618. EPA's complete failure to analyze BART for the sources covered by the trading program therefore violates 40 C.F.R. § 51.308(e)(2)(i)(C).

This is not a minor, technical error. EPA deliberately avoided comparing the trading program to either presumptive BART or source-specific BART because the agency knows that the Trading Rule would not achieve greater visibility improvement than BART. EPA has concluded that source-specific BART or presumptive BART would reduce SO<sub>2</sub> emissions by approximately 194,000 or 120,000 tons per year,<sup>56</sup> respectively, whereas the Trading Rule would not decrease emissions at all relative to 2016 emissions. EPA flouted its own regulations mandating a comparison between the trading program and BART because the agency's own, prior analyses demonstrate that the trading program cannot possibly satisfy the regulatory standard of achieving greater reasonable progress than BART.

### **C. The Trading Rule's reliance on the CSAPR Better than BART analysis is arbitrary and capricious.**

EPA's reliance on the CSAPR Better than BART analysis is fundamentally flawed, for several reasons. The agency relies on the Better than BART analysis to purportedly demonstrate that the Trading Rule achieves greater reasonable progress than BART. *See, e.g.*, 82 Fed. Reg. at 48,329, 48,330, 48,336, 48,342. EPA's basic argument is that CSAPR would achieve greater reasonable progress than BART, and the Trading Rule will achieve the same or greater emission reductions than CSAPR, therefore the Trading Rule will make greater reasonable progress than BART. This argument ignores critical factual and legal differences between CSAPR and the Trading Rule, as explained below.

#### **1. EPA cannot rely on an analysis of CSAPR because Texas is no longer in CSAPR for SO<sub>2</sub>.**

The Regional Haze Rule purports to give only those states that are in CSAPR the option of relying on CSAPR to satisfy BART. *See* 40 C.F.R. § 51.308(e)(4). EPA cannot rely on the CSAPR Better than BART analysis because Texas is not in CSAPR for SO<sub>2</sub>, and the intrastate trading program applies to only Texas.

In the original and subsequent EPA analyses purporting to show that CSAPR makes greater reasonable progress than BART, EPA claimed to satisfy the two-part test in 40 C.F.R. § 51.308(e)(3): "(i) [v]isibility does not decline in any Class I area, and (ii) [t]here is an overall improvement in visibility, determined by comparing the average differences between BART and

---

<sup>56</sup> BART FIP TSD at 2.

the alternative over all affected Class I areas.” See 77 Fed. Reg. at 33,644. To satisfy the second part of this test, EPA compared CSAPR and BART by examining the expected visibility improvement averaged across all affected Class I areas. In the original Better than BART Rule, updates to that rule, and in every subsequent regional haze plan in which EPA or a state has relied on the Better-than-BART Rule, EPA has maintained that the agency is not required to demonstrate that CSAPR achieves greater reasonable progress than BART in any particular state. See, e.g., *id.* at 33,650; 82 Fed. Reg. at 45,494.

But that is precisely what EPA must demonstrate here, because the Trading Rule applies to only a single state: Texas. There is no logical or legal basis for using the CSAPR Better than BART analysis, which looked at the average visibility improvement across Class I areas in the eastern part of the country, when evaluating the Trading Rule, which applies to Texas alone.

Having withdrawn Texas from CSAPR for SO<sub>2</sub>, 82 Fed. Reg. at 45,481, EPA cannot rely on the reasonable progress achieved by CSAPR in states other than Texas to demonstrate that a Texas-specific trading scheme would achieve greater reasonable progress than BART. In particular, under both of the provisions governing the demonstration for a BART alternative, an alternative covering only Texas sources cannot rely on visibility improvement at Class I areas that results from emission reductions at non-Texas sources. Under 40 C.F.R. § 51.308(e)(2)(i)(E), EPA must compare a BART alternative to “the installation and operation of BART *at the covered sources*.” (emphasis added). Here, by relying on the Better than BART analysis, EPA improperly compares the Trading Rule to a BART substitute required at sources in other states. Those sources are not “covered sources” because those non-Texas sources are not covered by the Trading Rule.

Under section 51.308(e)(3), EPA must compare a BART alternative to BART “over all affected Class I areas.” Here, the Class I areas “affected” by the Trading Rule are not the same Class I areas affected by CSAPR, given that any pollution reductions achieved by the Trading Rule would be from Texas alone, whereas CSAPR can take credit for emission reductions across numerous states.

Additionally, the Regional Haze Rule allows a state to rely on an alternative to BART only if the state demonstrates that the alternative in question—not some other program—would achieve greater reasonable progress than BART. See 40 C.F.R. § 51.308(e)(2)(i) (requiring that “*the* emissions trading program” achieve greater reasonable progress than BART), (e)(3) (“If the distribution of emissions is not substantially different than under BART, and *the alternative measure* results in greater emission reductions, then the alternative measure may be deemed to achieve greater reasonable progress.”), *id.* (where the emissions distribution is different, EPA must conduct dispersion modeling showing “overall improvement in visibility, determined by comparing the average differences between BART *and the alternative* over all affected Class I areas.”) (emphasis added for each provision). The Regional Haze Rule’s repeated reference to “the” trading program, along with the requirement that EPA evaluate BART against “the” BART alternative suggests that the demonstration must focus on the alternative that is actually adopted in lieu of BART—not some other program. Here, the Trading Rule does not adopt CSAPR as an alternative measure for satisfying SO<sub>2</sub> BART, and therefore the regulations do not allow EPA to rely on the purported visibility benefits from CSAPR in evaluating whether the Trading Rule achieves greater reasonable progress than BART.

## **2. EPA has repeatedly found that BART would reduce emissions far more than CSAPR at Texas sources.**

EPA's primary rationale for the Trading Rule—that CSAPR would achieve greater reasonable progress than BART for Texas sources—is flatly contradicted by EPA's own analyses. EPA claims that the Trading Rule is a lawful alternative to BART because the Rule will result in emissions “no greater than” the emissions projected under CSAPR. 82 Fed. Reg. at 48,336. But EPA has concluded that when Texas sources are examined separately, SO<sub>2</sub> emissions would be dramatically higher under CSAPR than under BART. As a result, regardless of whether one uses the “clear weight of evidence” test in 40 C.F.R. § 51.308(e)(2)(i)(E), or the two-part test in 40 C.F.R. § 51.308(e)(3), the Trading Program is not a lawful alternative to BART.

In the BART proposal, EPA determined that CSAPR would result in higher SO<sub>2</sub> emissions from Texas sources than source-specific BART would achieve. Specifically, EPA concluded that source-specific BART would reduce SO<sub>2</sub> emissions by 194,000 tons per year, “a larger reduction than projected under CAIR or CSAPR.” BART FIP TSD at 2.

As mentioned *supra* in Section IV.A, Texas' allowed SO<sub>2</sub> emissions under CSAPR were 316,517 tons, well over double the BART emissions under EPA's 2011 analysis.<sup>57</sup> Table 1, *supra* in Sec. IV.A, shows that under Texas' updated CSAPR budget, overall visibility would be worse under CSAPR than it would be under BART at affected Class I areas.

In responding to the remand of CSAPR, EPA reiterated that SO<sub>2</sub> emissions under BART would be dramatically lower than under CSAPR. Specifically, EPA found that requiring Texas sources to install BART would reduce SO<sub>2</sub> emissions by between 127,300 and 177,800 tons relative to emissions under CSAPR. 81 Fed. Reg. at 78,963. EPA concluded that removing Texas sources from CSAPR and requiring them to install BART controls would “improv[e] projected air quality in this scenario relative to projected air quality in both the Nationwide BART scenario and the base case scenario (in which the projected SO<sub>2</sub> emissions from Texas EGUs would not change).” *Id.*

In sum, every EPA analysis has reached the same conclusion: when Texas is examined separately, CSAPR would achieve less reasonable progress than BART. Given EPA's premise that the Trading Rule will achieve similar emission reductions and visibility gains as CSAPR, EPA's prior analyses demonstrate that the Trading Rule, like CSAPR, would achieve less reasonable progress than BART for the Class I areas affected by Texas sources.

---

<sup>57</sup> See EPA, Technical Support Document for Demonstration of the Transport Rule as a BART Alternative at 10, Table 2-4 (Dec. 2011), Docket ID No. EPA-HQ-OAR-2011-0729-0014; 81 Fed. Reg. at 78,963 n.58.

**3. The Trading Rule authorizes SO<sub>2</sub> emissions above Texas' CSAPR budget for SO<sub>2</sub>, so it is arbitrary and capricious to rely on the CSAPR Better than BART analysis.**

Even if CSAPR would achieve greater reasonable progress than BART for Texas sources, which it would not, the Trading Rule would allow Texas sources to emit more SO<sub>2</sub> than under CSAPR. This is an additional reason why EPA's reliance on the CSAPR Better than BART analysis to justify the Trading Rule is arbitrary and capricious.

In the most recent update to the Better-than-BART Rule, EPA rejected the suggestion that the agency could increase Texas' CSAPR budget for SO<sub>2</sub> and still rely on the CSAPR Better-than-BART Rule to satisfy BART. *See* 82 Fed. Reg. at 45,487 (“[B]ecause of the increased SO<sub>2</sub> budget, such a SIP would not ‘meet[] the requirements of . . . § 52.39’ and therefore would not allow the state to rely on its EGUs’ participation in the CSAPR SIP trading program as an alternative to source-specific BART for SO<sub>2</sub>.”). *Id.* EPA explained that:

To the extent the commenters are suggesting that the D.C. Circuit's holdings in *EME Homer City II* require the Agency to find that a SIP with a revised, higher SO<sub>2</sub> budget would somehow satisfy the CSAPR-better-than-BART rule despite its plain language, the Agency disagrees. . . . the CSAPR-better-than-BART rule rests on an evaluation of the projected visibility impacts from CSAPR implementation assuming the final CSAPR Phase 2 budget stringencies (including the 2012 CSAPR budget revisions, which were accounted for in the analysis for the final CSAPR-better-than-BART rule). Given this, continuing to enforce the CSAPR-better-than-BART rule's requirement that a state's participation in CSAPR through a SIP must “meet[] the requirements of . . . § 52.39”—including the requirement for a state budget no less stringent than was analyzed for purposes of promulgating the rule—is entirely reasonable.

*Id.* n.47.

Texas' revised CSAPR budget for SO<sub>2</sub> was 317,100 tons per year. 81 Fed. Reg. at 78,963 n.58. However, the Trading Rule does not limit Texas' SO<sub>2</sub> emission to 317,100 tons or less per year.

Starting in 2019, the Trading Rule makes 238,393 tons of allowances available, plus a supplemental allowance pool that can grow as high as 54,711 tons per year, for total allowances of 293,104 tons per year. *See* 82 Fed. Reg. at 48,358-60 (to be codified at 40 C.F.R. §§ 97.910, 97.912). However, several Texas sources that were included in CSAPR are not subject to the Trading Rule, and these sources emit approximately 27,446 tons per year. *Id.* at 48,358. In total, the Trading Rule authorizes Texas sources to emit up to 320,550 tons of SO<sub>2</sub> per year—higher than the 317,100 tons per year that EPA assumed Texas sources would emit under CSAPR.

In sum, the Trading Rule authorizes Texas sources to emit more than the 317,100 tons per year below which EPA's Better than BART analysis purports to show that CSAPR improves visibility more than BART. Given that the Trading Rule authorizes SO<sub>2</sub> emissions that exceed the level above which EPA claims CSAPR no longer achieves greater reasonable progress than

BART, it was arbitrary and capricious for EPA to conclude that the Trading Rule is a lawful BART alternative based on EPA's prior CSAPR findings. In addition, as explained above, EPA has found on three separate occasions that BART would reduce emissions more than CSAPR at Texas sources. As a result, it was arbitrary and capricious for EPA to rely on the Better than BART analysis to conclude that the Trading Rule would achieve greater reasonable progress than BART.

**4. EPA violated the Regional Haze Rule by failing to determine which units are subject to BART.**

The Trading Rule fails to satisfy the requirement that an alternative achieve greater reasonable progress than BART, 40 C.F.R. § 51.308(e)(2)(i)(E), (e)(3), because EPA has not even determined which sources are subject to BART in the first place. EPA states that “we do not deem it necessary to finalize subject-to-BART findings for these EGUs for these pollutants.” 82 Fed. Reg. at 48,328. In particular, EPA declined to determine whether Coletto Creek is subject to BART and declined to respond to comments concerning its subject-to-BART modeling. *Id.* at 48,351-52. Without deciding which sources are subject to BART, EPA cannot possibly demonstrate that the Trading Rule achieves greater reasonable progress than BART, as required by 40 C.F.R. § 51.308(e)(2)(i)(E), (e)(3). Furthermore, EPA's failure to determine which sources are subject to BART is yet another reason EPA violated the requirement to determine BART for purposes of comparing the Trading Rule to BART, *see* 40 C.F.R. § 51.308(e)(2)(i)(C) (requiring an analysis of BART “for each source within the State subject to BART and covered by the alternative program”).

**5. EPA arbitrarily failed to assess the impact of Texas' withdrawal from CSAPR.**

EPA's reliance on the CSAPR Better than BART analysis is also arbitrary and capricious because the agency failed to consider the low prices of SO<sub>2</sub> allowances in the CSAPR program. Consequently, there is no reasonable basis to conclude that CSAPR will result in meaningful emissions reductions, because electric generating unit owners will simply purchase allowances instead of installing SO<sub>2</sub> controls. In its rule removing Texas from CSAPR for SO<sub>2</sub>, EPA concedes that the price of SO<sub>2</sub> allowances for the CSAPR program is currently lower than when CSAPR was originally promulgated, and thus emissions reductions would be lower than originally expected. *See* 82 Fed. Reg. at 45,493.

Despite recognizing that the change in allowance prices may affect emissions, EPA performed no meaningful analysis in its Trading Rule—or anywhere else—of the impact of Texas' removal from CSAPR on the price of the CSAPR allowances. This is an especially glaring omission, considering EPA's acknowledgement that Texas' exit from the SO<sub>2</sub> CSAPR program will result in an additional 22,300 allowances remaining in the Group 2 SO<sub>2</sub> CSAPR market, which will result in a decrease in the price of SO<sub>2</sub> allowances. *Id.* The price of SO<sub>2</sub> allowances impacts the distribution of SO<sub>2</sub> emissions. Because EPA relied on modeling and allowance cost thresholds to set the SO<sub>2</sub> CSAPR budgets, but did not consider the impact of allowance pricing on CSAPR, the CSAPR Better than BART demonstration is flawed. And because the Trading Rule relies on that Better than BART demonstration, the Trading Rule, in turn, is equally flawed.



On reconsideration, if EPA were to continue to rely on the CSAPR better than BART analysis—which it should not, for all the reasons explained in this petition—EPA must consider how the pricing and availability of SO<sub>2</sub> allowances affects the integrity of the CSAPR emissions trading program. And the agency should perform additional technical analysis regarding the adequacy of EPA’s emissions shifting analysis, including an analysis on the expected price of SO<sub>2</sub> allowance pricing with Texas no longer participating in CSAPR.

**V. EPA’s finding that the Trading Rule satisfies Texas’ CAA Section 110(a)(2)(D)(i)(II) visibility transport plan requirements is unlawful, arbitrary, and capricious.**

EPA also violated several Clean Air Act requirements when it concluded that the Trading Rule satisfies the CAA section 110(a)(2)(D)(i)(II) visibility transport plan requirements for Texas. EPA’s finding, 82 Fed. Reg. at 48,332, violates the Act’s notice and comment requirements, as well as the specific requirement that the agency provide “an explanation of the reasons for any major changes in the promulgated rule from the proposed rule.” 42 U.S.C. § 7607(d)(6)(A)(ii). The Trading Rule violates these requirements because EPA failed to propose that its intrastate trading scheme would satisfy section 110(a)(2)(D)(i)(II), and because the agency failed to explain the reversal of its prior finding that section 110(a)(2)(D)(i)(II) requirements would be met through source-specific BART.

In the January 2017 proposed rule, EPA found that its source-specific BART proposal, together with Texas’ participation in CSAPR for NO<sub>x</sub>, would satisfy these requirements. *See* 82 Fed. Reg. at 917. EPA’s rationale was that this combination would produce greater emission reductions and visibility benefits than assumed under CAIR or CSAPR alone, and that the source-specific BART requirements would cut the most significant emissions from large sources. *Id.* (“We are proposing this action based on the reasoning that our BART FIP will achieve more emission reductions than projected under CAIR or CSAPR and the reductions are occurring at sources that have particularly large impacts on Class I areas outside of Texas.”).

In the Trading Rule, however, EPA adopted a totally different position that was never proposed. First, the agency relied on its newly invented intrastate trading program, not source-specific BART, to meet the visibility transport obligation. Second, EPA based that reliance on a totally new rationale, namely, that the SO<sub>2</sub> reductions it predicted from the trading program would be consistent with emissions reductions modeled by the now-defunct CENRAP under a regional haze planning organization process. *Id.* at 48,332. The public never had a chance to comment on this totally new rationale, which is baseless on its face. That CENRAP used emission assumptions in its modeling does not show that those assumptions were in fact sufficient to assure non-interference by Texas’ emissions with measures required to protect visibility in other states. Moreover, the states whose visibility is impacted by Texas include states that were not members of CENRAP, such as New Mexico and Colorado.<sup>58</sup> If EPA had proposed this approach, Petitioners would have submitted detailed comments showing why the CENRAP emissions assumptions are not adequate to meet the visibility transport requirements. Because the Trading Rule purports to satisfy Texas’ section 110(a)(2)(D)(i)(II) obligations

---

<sup>58</sup> *See, e.g.*, EPA, BART Modeling TSD at App. E, Docket ID No. EPA-R06-OAR-2016-0611-0006 at 85-102, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0006>.

through a never-proposed approach, the Rule violates the CAA’s notice and comment requirements. By failing to explain the Trading Rule’s radical departure from the rationale set forth in the proposed rule, EPA violated 42 U.S.C. § 7607(d)(6)(A)(ii) as well.

EPA’s reliance on the Trading Rule to satisfy the section 110(a)(2)(D)(i)(II) is also arbitrary and capricious. EPA claims that the Trading Rule reduces emissions as much as CAIR would have, and the central states agreed that their respective interstate visibility transport obligations would be met through implementation of CAIR. *See* 82 Fed. Reg. at 48,332. But as explained above, *supra* Sec. IV.B.1, EPA cannot use CAIR—which has been invalidated by the D.C. Circuit and replaced by EPA—as the benchmark for whether the Trading Rule meets the interstate visibility transport requirements. And there is no rational basis for EPA’s new rationale of relying on the emission levels assumed in CENRAP modeling as a basis for finding that Texas’ emissions will not interfere with other states’ visibility plans. Moreover, as noted above, some states whose visibility is impacted by Texas were not members of CENRAP, and thus the CENRAP process could not have determined what emissions limits were necessary to satisfy Texas’ obligations regarding New Mexico and Colorado.

In addition, for all of the reasons explained elsewhere in this petition, the Trading Rule suffers from multiple procedural and substantive flaws. Given that the Trading Rule is unlawful, it cannot satisfy Texas’ interstate visibility transport obligations.

To the extent the above violations could be characterized as procedural,<sup>59</sup> they amply meet the criteria set forth in 42 U.S.C. § 7607(d)(9)(D) for reversal based on procedural violations. First, EPA’s violations were arbitrary and capricious. *See* 42 U.S.C. § 7607(d)(9)(D)(i). As explained above, in the Trading Rule, EPA adopted an entirely new approach to the section 110(a)(2)(D)(i)(II) requirements—one that was never proposed, and of which Petitioners had no notice. This blatant disregard of the Act’s notice and comment procedures is unlawful, arbitrary, and capricious. EPA’s complete failure to meet the requirements of 42 U.S.C. § 7607(d)(6)(A)(ii) was likewise unlawful, arbitrary, and capricious. Second, in filing the present petition, Petitioners have satisfied § 7607(d)(9)(D)(ii). Third, EPA’s violations “were so serious and related to matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been significantly changed if such errors had not been made.” *See id.* § 7607(d)(8) (cited in *id.* § 7607(d)(9)(D)(iii)). If EPA had proposed relying on the CENRAP assumptions in the proposed rule, it would have learned that those assumptions cannot meet the visibility transport requirements, and are otherwise arbitrary and capricious.<sup>60</sup> And if EPA had complied with § 7607(d)(6)(A)(ii), the agency would have

---

<sup>59</sup> EPA’s failure to follow the Clean Air Act’s rulemaking procedures, and its disregard of 42 U.S.C. § 7607(d)(6)(A)(ii), are not only procedural violations; they are also substantive, because EPA abandoned the strong emission limits it previously proposed to satisfy section 110(a)(2)(D)(i)(II), and because, by failing to provide “an explanation of the reasons for [ ] major changes” from the BART proposal, EPA’s Trading Rule is incomplete and legally deficient. Because the Trading Rule is not lawful action, and is not even a final agency action, Petitioners need not make a showing under § 7606(d)(9)(D). Petitioners make this showing purely as a protective matter.

<sup>60</sup> For example, Petitioners would have submitted adverse comments explaining that it would be arbitrary to rely on CENRAP’s modeling, which was based on CAIR (a defunct and judicially-invalidated program), and that EPA’s reliance cannot satisfy the visibility transport requirements.

been forced to confront the radical differences between the proposed rule’s approach to section 110(a)(2)(D)(i)(II) and the Trading Rule’s arbitrary approach. Accordingly, there is a substantial likelihood that the Trading Rule would have been significantly different if EPA had not made the errors identified by Petitioners. Petitioners therefore satisfy the requirements of 42 U.S.C. § 7607(d)(9)(D).

## **VI. EPA cannot lawfully adopt the Trading Rule’s intrastate trading scheme because it is too late to do so.**

The Trading Rule is also unlawful because even *if* the intrastate trading scheme would reduce SO<sub>2</sub> emissions—it would not, as explained above—those emission reductions would occur too late. Under the Regional Haze Rule, any BART alternative must include a “requirement that all necessary emission reductions take place during the period of the first long-term strategy for regional haze.” *See* 40 C.F.R. § 51.308(e)(2)(iii). Because the first planning period ends in 2018,<sup>61</sup> any BART alternative would need to achieve “all necessary emission reductions” by next year. *See, e.g.*, 77 Fed. Reg. 36,044, 36,053 (June 15, 2012) (“Section 308(e)(2) requires that all emission reductions for the alternative program take place by 2018 . . . .”); 77 Fed. Reg. 28,825, 28,832 (May 16, 2012) (“Under 40 CFR 51.308(e)(2)(iii)–(iv), all emission reductions for the alternative program must take place by 2018 . . . .”); 77 Fed. Reg. 18,052, 18,075 (Mar. 26, 2012).<sup>62</sup> The Trading Rule fails this requirement, because the intrastate trading program does not even *begin* until January 1, 2019. 82 Fed. Reg. at 48,330, 48,368. Thus, because EPA cannot ensure that the necessary SO<sub>2</sub> reductions would take place by the end of the first planning period in 2018, the Trading Rule is unlawful.<sup>63</sup>

EPA’s claim, that “the end of the first planning period of the first long-term strategy for Texas is 2021,” 82 Fed. Reg. at 48,330; Legal RTC at 7, is meritless and contrary to EPA’s consistent statements identifying 2018 as the close of the first planning period. *See, e.g.*, 77 Fed. Reg. at 36,053; 77 Fed. Reg. at 28,832; 77 Fed. Reg. at 18,075. Indeed, the authority that EPA relies upon for this claim makes clear that the opposite is true. In its January 2017 revisions to the Regional Haze Rule, EPA stated unequivocally that the changes it made—including

---

<sup>61</sup> *See, e.g., Yazzie v. EPA*, 851 F.3d 960, 970 n.8 (9th Cir. 2017) (noting dispute among parties as to the exact date on which first planning period ends, the latter of which is Dec. 31, 2018); 77 Fed. Reg. at 33,647 (noting that 2018 is “the end of the first regional haze planning period”); 64 Fed. Reg. 35,714, 35,760 (July 1, 1999) (referencing 2018 as “the end of the first long-term progress period”).

<sup>62</sup> The same is not true of source-specific BART itself. Thus, *compliance* alternatives with *source-specific BART* are permitted to extend past the first planning period.

<sup>63</sup> In comments on the proposed rule, Petitioners NPCA and Sierra Club noted that any BART alternative would be too late because emissions reductions would need to occur by 2018. *See* NPCA/SC Comments at 23-24. As discussed in the text, EPA responded to this comment in its Legal RTC. Because Petitioners raised this objection with reasonable specificity during the public comment period, they are entitled to seek judicial review on this issue. 42 U.S.C. § 7607(d)(7)(B). Petitioners are nonetheless discussing this issue in this reconsideration petition for two reasons: first, to make clear that *this* intrastate trading scheme, which EPA never proposed, fails the timing requirement of 40 C.F.R. § 51.308(e)(2)(iii); and second, by highlighting yet another fatal flaw in the Trading Rule, to underscore how thoroughly unlawful this Rule is.

postponing the beginning of the second planning period to 2021—were not intended to change requirements for the first planning period:

All of these changes apply to periodic comprehensive state implementation plans developed for the second and subsequent implementation periods and to progress reports submitted subsequent to those plans. These changes do not affect the development and review of state plans for the first implementation period or the first progress reports due under the 1999 Regional Haze Rule.

82 Fed. Reg. 3078, 3080 (Jan. 10, 2017). Because any BART alternative would need to achieve all necessary emission reductions by 2018, and because the Trading Rule fails to do so, that rule is unlawful, arbitrary, and capricious. 42 U.S.C. § 7607(d)(9)(A).

## **VII. The Trading Rule is unlawful because Texas’ mere submittal of a SIP would suspend key provisions of the trading program.**

The Trading Rule is also unlawful because it allows EPA to suspend key provisions of the intrastate trading program if Texas merely submits a SIP revision (*i.e.*, in situations where the SIP revision has been submitted for review, but not approved by EPA). This feature of the Trading Rule is a blatant violation of the Clean Air Act, and it further demonstrates the unlawfulness of the Rule.

The Clean Air Act prescribes a specific process for the review and approval of a SIP (or SIP revision). If a state submits a SIP, EPA must determine within six months whether the submission is complete. 42 U.S.C. § 7410(k)(1)(A). If the plan is complete, EPA then has one year to determine whether the plan comports with legal requirements and to either approve or disapprove the plan, in whole or in part. *Id.* EPA may not approve a plan “if the revision would interfere with any. . . applicable requirement” of the Clean Air Act. *Id.* § 7410(l). And the promulgation of a SIP is subject to the Act’s rulemaking requirements, *id.* § 7607(d)(1)(B), including notice and an opportunity for public comment, *id.* § 7607(d)(2)-(6).

And the process is no different in situations where a SIP has been proposed to replace a previously enacted FIP; under § 7407(d)(1)(B), EPA must go through the CAA’s rulemaking procedures. Simply put, no provision of the Act allows the mere submission of a SIP to suspend operation of a FIP. Yet, that is precisely what the Trading Rule allows. Section 97.921 provides:

(a) By November 1, 2018, the Administrator will record in each Texas SO<sub>2</sub> Trading Program source’s compliance account the Texas SO<sub>2</sub> Trading Program allowances allocated to the Texas SO<sub>2</sub> Trading Program units at the source in accordance with § 97.911(a) for the control periods in 2019, 2020, 2021, and 2022. *The Administrator may delay recordation of Texas SO<sub>2</sub> Trading Program allowances for the specified control periods if the State of Texas submits a SIP revision before the recordation deadline.*

(b) By July 1, 2019 and July 1 of each year thereafter, the Administrator will record in each Texas SO<sub>2</sub> Trading Program source's compliance account the Texas SO<sub>2</sub> Trading Program allowances allocated to the Texas SO<sub>2</sub> Trading Program units at the source in accordance with § 97.911(a) for the control period in the fourth year after the year of the applicable recordation deadline under this paragraph. *The Administrator may delay recordation of the Texas SO<sub>2</sub> Trading Program allowances for the applicable control periods if the State of Texas submits a SIP revision by May 1 of the year of the applicable recordation deadline under this paragraph.*

40 C.F.R. § 97.921(a), (b) (emphases added). Under § 97.921(a), allowances are assigned to all of the sources that participate in the program via § 97.911(a) for the years 2019, 2020, 2021, and 2022. Under § 97.911(b), the allowance assignment deadline is moved for assigning allowances thereafter. If these allowances are not assigned due to the submission of an unspecified Texas SIP, the trading program cannot function.

These provisions are unlawful, arbitrary, and capricious for at least three reasons. First, by permitting the mere submittal of a SIP to suspend the central component of the Trading Rule, these provisions flout the Act's rulemaking requirements. Second, assuming, *arguendo*, that the trading program were a permissible BART alternative—it plainly is not, for the many reasons identified in this petition—suspension of the program would mean that there is no functioning BART alternative in place. This would be a clear violation of 42 U.S.C. § 7491(b)(2)(A) and 40 C.F.R. § 51.308(e), both of which require a plan implementing SO<sub>2</sub> BART.<sup>64</sup> Third, the Trading Rule does not include any provision that would resume the intrastate trading program if the State's proposed SIP were found to be deficient. In other words, these provisions would allow the trading program to be suspended indefinitely simply because the State submitted a proposed SIP. This violates the Clean Air Act and is arbitrary and capricious.

---

<sup>64</sup> The Act makes clear that EPA's FIP responsibilities, *see* 42 U.S.C. § 7410(c)(1)(A)-(B), are not discharged simply because a state submitted a SIP. As the Tenth Circuit explained in a case involving Oklahoma's regional haze plan:

Once the EPA issued findings that Oklahoma failed to submit the required SIP under the Regional Haze Rule, the EPA had an obligation to promulgate a FIP. The statute itself makes clear that the mere *filing* of a SIP by Oklahoma does not relieve the EPA of its duty. And the petitioners do not point to any language that requires the EPA to delay its promulgation of a FIP until it rules on a proposed SIP. As the EPA points out, such a rule would essentially nullify any time limits the EPA placed on states. States could forestall the promulgation of a FIP by submitting one inadequate SIP after another.

*Oklahoma v. EPA*, 723 F.3d 1201, 1223 (10th Cir. 2013) (emphasis in the original).

### **VIII. The Trading Rule's treatment of retired generating units is arbitrary and capricious.**

The Trading Rule is also arbitrary and capricious because, through its treatment of retired generating units that are subject to BART, the trading program arbitrarily increases the emission allowances under the program. There are two respects in which this feature of the Trading Rule is arbitrary: first, by including an already retired unit, Welsh 2, in the trading program; and second, through its treatment of retired units more generally.

Welsh unit 2, which was subject to BART, retired in April 2016.<sup>65</sup> In the proposed rule, EPA appropriately acknowledged this fact and, logically, did not propose SO<sub>2</sub> BART controls for this unit. *See* 82 Fed. Reg. at 921 (“Welsh Unit 2 retired in April, 2016.”). But in the Trading Rule, EPA ignores this fact, and includes Welsh 2 in the intrastate trading program. EPA does not even acknowledge, much less explain, its change in position as to how the retirement of Welsh 2 should be treated. This unit—which retired 17 months before EPA’s adoption of the Trading Rule—has been assigned an allowance of 7,050 tons of SO<sub>2</sub>. *Id.* at 48,357 (Tbl. 8). EPA’s decision to increase the trading program’s allowable SO<sub>2</sub> emissions in defiance of facts it previously admitted is plainly arbitrary. This also directly undercuts the visibility goals that BART is intended to promote. Moreover, by flooding the trading program with SO<sub>2</sub> allowances that are not tied to an operating unit, EPA’s decision will decrease the price of allowances, creating a further disincentive to install meaningful SO<sub>2</sub> controls.

Even aside from Welsh unit 2, the Trading Rule’s treatment of retired units is arbitrary and capricious. In particular, a retired unit’s allowances are permitted to survive for an arbitrarily long time following that unit’s retirement. This again contravenes the Clean Air Act’s reasonable progress goals, and would further flood the market with unnecessary allowances.

Under the intrastate trading program, a retired generating unit’s allowances are not immediately retired. Instead, a retired unit does not lose its allowances until five years after the year in which it ceases operations:

Notwithstanding paragraph (a)(1) of this section, if a unit provided an allocation pursuant to the table in paragraph (a)(1) of this section does not operate, starting after 2018, during the control period in two consecutive years, such unit will not be allocated the Texas SO<sub>2</sub> Trading Program allowances provided in paragraph (a)(1) of this section for the unit for the control periods in the fifth year after the first such year and in each year after that fifth year. All Texas SO<sub>2</sub> Trading Program allowances that would otherwise have been allocated to such unit will be allocated under the Texas Supplemental Allowance Pool under 40 CFR 97.912.

---

<sup>65</sup> *See* SWEPCO, *Welsh Power Plant Retrofit of Units 1 and 3*, available at <https://www.swepco.com/global/utilities/lib/docs/info/projects/Welsh/WelshPlant.pdf> (last visited Dec. 14, 2017) (attached as Ex. C).

40 C.F.R. § 97.911(a)(2). Because it allows the owners of retired units to hold allowances until long after the unit would even arguably need them, the Trading Rule is arbitrary and capricious.<sup>66</sup>

The Trading Rule’s treatment of allowances for retired units is especially arbitrary given the large number of generating units that are projected to retire before the trading program even begins. By including the phrase “starting after 2018,” § 97.911(a)(2) grandfathers into the trading program any unit that retires before the January 1, 2019 start date. And Luminant has announced its intention to retire a number of such units: Monticello, Big Brown, and Sandow units are slated to retire in early 2018.<sup>67</sup> Likewise, CPS Energy announced several years ago that it would retire JT Deely units 1 and 2 by the end of 2018.<sup>68</sup> Given that EPA was aware of announced plans to retire some generating units before the trading program even began,<sup>69</sup> the Trading Rule should have included a provision removing these units’ allowances upon confirmation that they ceased operation. EPA’s failure to include such a provision, together with its disregard for the fact that Welsh 2 has already retired, will flood the trading program with up to 74,313 tons of unnecessary allowances. In addition, the Trading Rule does not assess the potential impact this large surplus of allowances would have on the value of allowances, which is a fundamental driving force of any allowance trading program.

The arbitrariness of § 97.911(a)(2) can be illustrated by considering the trading rule’s treatment of allowances for the seven Luminant units retiring in January 2017. Under that provision, it appears that Luminant will not lose those allowances until minimally 2023, and potentially 2024, depending on how the “fifth year after the first such year” is interpreted:

Year	Action
2018	Retirement of seven Luminant units (Not counted because § 97.911(a)(2) “start[s] after 2018”)
2019	First full year of not operating under § 97.911(a)(2)
2020	Second full year of not operating under § 97.911(a)(2)
2021	
2022	
2023	“fifth year after the first such year,” counting the first year
2024	“fifth year after the first such year,” not counting the first year

---

<sup>66</sup> This is compounded by the fact that, if a unit operates for as little as one hour during the first two years after the announced retirement, that unit retains all of its allowances. 40 C.F.R. § 97.911(a)(2). This provision amplifies the problem of excess allowances within the trading program.

<sup>67</sup> *Luminant Announces Decision to Retire Its Monticello Power Plant* (Oct. 6, 2017), available at <https://hub.vistraenergy.com/luminant-announces-decision-to-retire-its-monticello-power-plant/>; *Luminant Closes Two Texas Power Plants* (Oct. 13, 2017), available at <https://hub.vistraenergy.com/luminant-closes-two-texas-power-plants/> (attached as Ex. C).

<sup>68</sup> *Grid operator notified: Deely coal plant operations to be indefinitely suspended in 2018* (Oct. 28 2013), available at <https://newsroom.cpsenergy.com/coal-plant-operations-suspended-2018/> (attached as Ex. C).

<sup>69</sup> EPA was plainly aware of the announced plans to retire JT Deely by the end of 2015, as it was mentioned in the Reasonable Progress Rule. 81 Fed. Reg. at 332.

As the table above demonstrates, Luminant will continue to receive allowances for these seven retired units for years after the units actually retire. Such allowances will presumably be available for the company to use on other units, trade, or bank.<sup>70</sup>

#### **IX. The Trading Rule's supplemental allowance pool provision is arbitrary.**

40 C.F.R. § 97.912 is unlawful, arbitrary, and capricious because, far from reducing SO<sub>2</sub> emissions to improve visibility at the Class I Areas impacted by these Texas generating units, this provision would allow SO<sub>2</sub> emissions to increase over time. Section 97.912 regulates how compliance assistance will be provided to any unit that finds itself in the position of not holding enough allowances to cover its year-end SO<sub>2</sub> emissions.

This provision's treatment of Coletto Creek is unreasonably permissive because § 97.912(a)(3)(i) allows Coletto Creek to increase its emissions to an unspecified level without incurring any penalty. 82 Fed. Reg. at 48,370. Section 97.912(a)(3)(i) states:

For Coletto Creek (ORIS 6178), if the source is identified under paragraph (a)(1) of this section, the Administrator will allocate and record in the source's compliance account an amount of allowances from the Supplemental Allowance Pool equal to the lesser of the amount calculated for the source under paragraph (a)(2) of this section or the total number of allowances in the Supplemental Allowance Pool available for allocation under paragraph (b) of this section.

Paragraph (a)(2) simply determines how much Coletto Creek's SO<sub>2</sub> emissions exceed its allowances. Thus, under § 97.912(a)(3)(i), if Coletto Creek requires more allowances to be in compliance, those allowances will be provided up to the amount held in the supplemental allowance pool. Because that pool's *starting* balance is 10,000 tons, and given that Coletto Creek's 2016 SO<sub>2</sub> emissions totaled 8,231 tons,<sup>71</sup> § 97.912(a)(3)(i) would allow this unit to more than double its 2016 SO<sub>2</sub> emissions. And nothing in the Trading Rule would prevent Coletto Creek from increasing its SO<sub>2</sub> emissions to even higher levels, if and when the special allowance pool has accumulated allowances in excess of 10,000 tons.

Even apart from its treatment of Coletto Creek, § 97.912 is arbitrary and capricious because it facilitates increases in SO<sub>2</sub> emissions. Once Coletto Creek has availed itself of any needed allowances, § 97.912(a)(3)(ii) provides that any other power plants that also need compliance assistance can divide up the remaining allowances. If the needed allowances exceed what remains in the supplemental allowance pool, then the remaining allowances are distributed proportionally. These provisions underscore that, far from reducing SO<sub>2</sub> emissions, the Trading Rule is designed to allow current SO<sub>2</sub> emissions to increase.

---

<sup>70</sup> When Luminant finally loses its allowances from these retirements, it appears they will be moved to the Supplemental Allowance Pool (up to its maximum of 54,711 tons) which will then be used to ensure that other generating units remain compliant with the trading program's already-permissive SO<sub>2</sub> budgets.

<sup>71</sup> See EPA, Clean Air Markets Data, available at <https://ampd.epa.gov/ampd/>.



## **X. The Trading Rule is based on a determination of nationwide scope and effect.**

For the reasons explained above, EPA should withdraw the Trading Rule and replace it with a BART FIP that complies with CAA requirements. And because it is too late to implement a BART alternative, *see* 40 § 51.308(e)(2)(iii), the agency should take final action on the source-specific BART determinations it made in the January 2017 proposed rule. Nevertheless, if EPA ignores CAA requirements and insists on retaining its intrastate trading scheme, on reconsideration the agency must publish a finding that the Trading Rule “is based on a determination of nationwide scope or effect.” 42 U.S.C. § 7607(b)(1). Such a finding is necessary because the Trading Rule is plainly based on such a determination, and thus should be reviewed in the United States Court of Appeals for the District of Columbia.<sup>72</sup>

The Clean Air Act establishes that petitions for review of nationally applicable actions, as well as any action based on a determination of nationwide scope or effect, are to be filed in the D.C. Circuit. *Id.* As explained below, the Trading Rule is based on at least two determinations of nationwide scope and effect. EPA therefore had an obligation to find that the Trading Rule is based on such determinations, and the agency should have published in the Federal Register its finding, together with a statement that challenges to the Rule should be filed in the D.C. Circuit.<sup>73</sup>

First, the Trading Rule is based on a determination of nationwide scope or effect because the Rule purports to be “designed to achieve SO<sub>2</sub> emission levels from Texas sources similar to the SO<sub>2</sub> emission levels that would have been achieved under CSAPR.” 82 Fed. Reg. at 48,330. The Trading Rule’s emission budget for Texas is purportedly based on the emissions budget for Texas under CSAPR,<sup>74</sup> and the Trading Rule’s regulatory provisions are modeled after CSAPR. This is demonstrated by a side-by-side comparison of the regulatory provisions governing the states subject to the CSAPR SO<sub>2</sub> trading program, 40 C.F.R. §§ 97.701-735, and those for the new Trading Rule, 40 C.F.R. §§ 97.901-935.<sup>75</sup> Because the Trading Rule’s provisions are

---

<sup>72</sup> The public was given no opportunity to comment on the proper venue for judicial review of the Trading Rule. The January 2017 proposed rule did not include any suggestion that EPA was considering the adoption of an intrastate trading program. It was not until the Trading Rule’s promulgation that EPA announced a trading alternative for Texas sources that is purportedly “designed to achieve SO<sub>2</sub> emission levels from Texas sources similar to the SO<sub>2</sub> emission levels that would have been achieved under CSAPR.” 82 Fed. Reg. at 48,330. The public thus did not have an opportunity to comment on the venue implications of EPA’s new trading scheme. Because the grounds for Petitioners’ objection arose after the public comment, and because it would have been impracticable to raise an objection within the time allowed for public comment, this objection is appropriate for reconsideration. 42 U.S.C. § 7607(d)(7)(B).

<sup>73</sup> If EPA fails to publish such a finding on reconsideration (and fails to withdraw this unlawful Trading Rule), subsequent legal challenges to the Trading Rule would still be properly venued in the D.C. Circuit pursuant to 42 U.S.C. § 7607(b)(1). Nonetheless, EPA should make an explicit finding of nationwide scope and effect to avoid the delay and expense of potential venue disputes.

<sup>74</sup> As noted above, however, under the Trading Rule Texas generating units could be permitted to emit more SO<sub>2</sub> than had been allowed under CSAPR.

<sup>75</sup> Compare, e.g., 40 C.F.R. §§ 97.701-735 (CSAPR program enumerating definitions for affected sources, establishing procedures for determining applicability, retired unit exemptions, general provisions,

modeled on CSAPR's regulations, the Trading Rule is, on its face, based on a determination of nationwide scope and effect.

Second, the Trading Rule is also “based on a determination of nationwide scope or effect” because, in support of its claim that the Trading Rule achieves greater reasonable progress than source-specific BART, EPA relies upon the 2012 nationwide determination that CSAPR provides greater reasonable progress than BART, as well as EPA's subsequent updates to that analysis. 82 Fed. Reg. at 48,353, 48,357, 48,359-60. As discussed above, to rely on the implementation of an emissions trading program in lieu of source-specific BART, EPA must demonstrate that the alternative achieves greater reasonable progress than BART. 40 C.F.R. § 51.308(e)(2). In the Trading Rule, EPA declined to conduct the modeling required by § 51.308(e)(3), and instead relied on the agency's 2012 CSAPR Better than BART determination. 82 Fed. Reg. at 48,357 (acknowledging that the 2012 demonstration purportedly showing that “CSAPR as finalized and amended in 2011 and 2012 meets the Regional Haze Rule's criteria for a demonstration of greater reasonable progress than BART . . . is the primary evidence that the Texas trading program achieves greater reasonable progress than BART”) (emphasis added). EPA has previously admitted that the CSAPR Better than BART Rule is a nationally applicable rule. *See, e.g.*, 82 Fed. Reg. at 45,495-96 (finding that the rule withdrawing Texas from CSAPR and updating the Better than BART Rule is nationally applicable and publishing a finding that the rule is based on a determination of nationwide scope and effect). Indeed, challenges to that 2012 analytic demonstration remain pending in the D.C. Circuit Court of Appeals. Because the Trading Rule is explicitly based upon that nationwide 2012 modeling demonstration—*i.e.*, an analytic determination of nationwide scope and effect—EPA must make a “nationwide scope and effect finding” if it fails to withdraw the Trading Rule.

Such a finding would also be necessary to ensure consistency with EPA's separate, recent rulemaking withdrawing Texas from CSAPR—a rule EPA found was national in scope. *Id.* at 45,495. In withdrawing Texas from the CSAPR program, EPA recognized that, although the rule directly impacted only Texas and Florida, it had implications for multiple states. For that reason, EPA determined that “retaining review in the D.C. Circuit is appropriate and avoids the potential” for inconsistent judicial determinations relating to the CSAPR program or the underlying 2012 “Better than BART” determination. *Id.* Additionally, EPA determined that its findings regarding Texas' interstate transport obligations with respect to a NAAQS was “based on a common core of factual findings and analyses concerning the transport of pollutants between the different states subject to CSAPR, which is a nationally applicable program.” *Id.* Here, the Trading Rule is similarly based on findings concerning the transport of pollutants between the different states subject to CSAPR emission budgets. Indeed, the Trading Rule cites to the 2012 Better than BART demonstration, as well as EPA's September 29, 2017 rule determining that CSAPR remains better than BART despite the withdrawal of Texas. *See, e.g.*, 82 Fed. Reg. at 48,326, 48,353. EPA previously concluded that each of those rules were national in scope and effect. Because the Trading Rule is based on those nationwide rules, review of the Rule's trading program must likewise be in the D.C. Circuit.

---

administrative appeal procedures, allowance allocations, a supplemental allowance pool, designated representatives, compliance accounts, recordation procedures, transfer procedures, banking procedures and limits, and establishing general monitoring, recordkeeping, and reporting requirements), *with* 40 C.F.R. §§ 97.901-935.

Refusing to include a “nationwide scope and effect” finding in the Trading Rule – and thus increasing the possibility that the D.C. Circuit does not review challenges to the Rule – also creates a significant risk of inconsistent judicial determinations relating to key aspects of the Trading Rule. As noted, the Trading Rule relies on both the 2012 Better than BART determination, as well as EPA’s September 29, 2017 update to that determination. Both of those rules are already under review in the D.C. Circuit. If the Trading Rule were not likewise reviewed by that court, there would be a greater risk of inconsistent judicial decisions regarding national aspects of the Trading Rule. By contrast, a finding that venue for review of the Trading Rule lies in the D.C. Circuit would be consistent with the purpose of the Clean Air Act venue provision to “centralize review of ‘national’ SIP issues in the D.C. Circuit.” *Texas v. EPA*, 2011 WL 710598, at \*4 (citations omitted).

For the reasons explained throughout this petition, EPA must reconsider the Trading Rule, and should withdraw the Rule and finalize the source-specific BART determinations required by the Regional Haze Rule. Nevertheless, if the agency refuses to withdraw the Trading Rule, the agency must, consistent with 42 U.S.C. § 7607(b)(1), publish a finding that this Rule is based on a determination of nationwide scope or effect.

## CONCLUSION

For all the foregoing reasons, EPA must reconsider the Trading Rule, and the Rule should be withdrawn and replaced with a BART FIP that complies with the Clean Air Act and Regional Haze Rule.

Sincerely,

/s/ Michael Soules

Michael Soules

Earthjustice

1625 Massachusetts Ave. NW, Suite 702

Washington, DC 20036

T: (202) 667-5237

E: msoules@earthjustice.org

Matthew Gerhart

3639 N. Clayton Street

Denver, CO 80205

T: (510) 847-7721

E: megerhart@gmail.com

*Counsel for National Parks Conservation*

*Association, Sierra Club, and Environmental Defense Fund*

Elena Saxonhouse  
Sierra Club  
2101 Webster Street, Suite 1300  
Oakland, CA 94612  
T: (415) 977-5560  
E: elena.saxonhouse@sierraclub.org

Joshua Smith  
Sierra Club  
2101 Webster Street, Suite 1300  
Oakland, CA 94612  
T: (415) 977-5560  
E: joshua.smith@sierraclub.org

*Counsel for Sierra Club*

# **Exhibit A**

**Note: changing selections in pulldown menus will change the data in summary spreadsheets**

<b><u>dv summary -</u></b>	Estimated deciview improvement from actual emissions (3-yr average annual emissions 2009-2013 eliminating min and max year baseline) dv improvement from average natural conditions "clean" and 2018 modeled conditions "dirty" summarizes data in DSI_low, DSI_high, SDA, WFGD, and WFGD_upgrade spreadsheets with baseline emission set at "3yr average 2009-2013 (eliminate max and min)"
<b><u>ext. summary -</u></b>	Estimated change in extinction from baseline emissions to controlled emissions (Using baseline of actual emissions and baseline of 2018 projected emissions (w/ CAIR)) summarizes data in DSI_low, DSI_high, SDA, WFGD, and WFGD_upgrade spreadsheets with baseline set at "3yr average 2009-2013 (eliminate max and min)" and baseline set at "2018"
<b><u>summary table -</u></b>	summarized dv improvement from each level of control
<b><u>proposal total vis 2018 -</u></b>	Calculated delta-dv improvement (2018 "dirty" background conditions) from all proposed controls beyond the 2018 CENRAP projected visibility conditions including CAIR reductions
<b><u>proposal total vis actual -</u></b>	Calculated delta-dv improvement from all proposed controls based on reducing actual emissions data presented for both "dirty" and "clean" background
<b><u>2018 RPG calcs -</u></b>	Calculation of adjusted RPG and time to reach natural conditions (NC II) with implementation of proposed upgrades and retrofits
<b><u>\$ and controls -</u></b>	summary of estimated control costs and controlled emission levels (See FIP Cost TSD for additional information)
<b><u>DSI_low, DSI_high, SDA, WFGD, WFGD_upgrade -</u></b>	Using calculated slope from "control effectiveness factor" spreadsheet, calculates the change in extinction estimated from reduction in emission from chosen baseline and controlled emission level (controlled emission level from "\$ and controls" worksheet) Calculate delta dv from change in extinction for a variety of background conditions including "clean" avg. natural background and "dirty" 2018 modeled background  selectable baseline emissions include "3yr average 2009-2013 (eliminate max and min)," "2018," "max 2009-2013," and "Average 2009-2013"
<b><u>no control -</u></b>	Using calculated slope from "control effectiveness factor" worksheet, calculates the extinction estimated from chosen baseline emission level Calculate delta dv from change in extinction for a variety of background conditions including "clean" avg. natural background and "dirty" 2018 modeled background  selectable baseline emissions include "3yr average 2009-2013 (eliminate max and min)," "2018," "max 2009-2013," and "Average 2009-2013"

## README

<b><u>control effectiveness factor -</u></b>	Change in extinction per change in ton emissions. Calculated slope from linear fit of data for each facility and Class I area, taken from "sorted PSAT results" worksheet
<b><u>background -</u></b>	natural background conditions and projected 2018 visibility conditions for each Class I area. used to estimate delta-dv for "clean" and "dirty" background
<b><u>baseline emissions data -</u></b>	calculated baseline emissions "3yr average 2009-2013 (eliminate max and min)," "2018," "max 2009-2013," and "Average 2009-2013" based on CEM data available in worksheet
<b><u>PSAT results -</u></b>	Environ modeling results for 2018 basecase, low control and high control runs modeled extinction at each Class I area for each tagged unit (high/low runs) or facility (2018 run)
<b><u>sorted PSAT results -</u></b>	Modeling results from "PSAT results" worksheet, sorted by facility slope, correlation, and intercept for a linear fit to the data are calculated for each facility and Class I area Calculated slope is the "control effectiveness factor" relating change in extinction to change in ton of emissions
<b><u>visibility -</u></b>	Using calculated slope from "control effectiveness factor" spreadsheet, calculates the change in extinction estimated from reduction in emission from chosen baseline and inputted % reduction emission level Calculate delta dv from change in extinction for a variety of background conditions including "clean" avg. natural background and "dirty" 2018 modeled background  selectable baseline emissions include "3yr average 2009-2013 (eliminate max and min)," "2018," "max 2009-2013," and "Average 2009-2013"

Estimated deciview improvement from actual emissions (3-yr average annual emissions 2009-2013 eliminating min and max year)

**Wichita Mountains****Visibility modeling results:**

Visibility modeling results:			dv improvement 2018 background (environ)						dv improvement (avg. natural conditions)				
Unit #	Facility		DSI_low	DSI_high	SDA	WFGD	WFGD_upgrade		DSI_low	DSI_high	SDA	WFGD	WFGD_upgrade
1	1	Big Brown Big Brown 1	0.045	0.081	0.085	0.088	#N/A		0.225	0.401	0.423	0.436	#N/A
	2	Big Brown Big Brown 2	0.045	0.081	0.086	0.088	#N/A		0.226	0.403	0.425	0.438	#N/A
3	1	Colet Creek Colet Creek 1	0.021	0.038	0.039	0.040	#N/A		0.105	0.189	0.196	0.200	#N/A
4	lim 1	Limestone Limestone lim 1	#N/A	#N/A	#N/A	#N/A	0.027		#N/A	#N/A	#N/A	#N/A	0.135
5	lim 2	Limestone Limestone lim 2	#N/A	#N/A	#N/A	#N/A	0.030		#N/A	#N/A	#N/A	#N/A	0.149
6	1	Martin Lake Martin Lake 1	#N/A	#N/A	#N/A	#N/A	0.047		#N/A	#N/A	#N/A	#N/A	0.234
7	2	Martin Lake Martin Lake 2	#N/A	#N/A	#N/A	#N/A	0.040		#N/A	#N/A	#N/A	#N/A	0.202
8	3	Martin Lake Martin Lake 3	#N/A	#N/A	#N/A	#N/A	0.037		#N/A	#N/A	#N/A	#N/A	0.185
9	1	Monticello Monticello 1	0.026	0.047	0.050	0.051	#N/A		0.132	0.236	0.249	0.254	#N/A
10	2	Monticello Monticello 2	0.024	0.043	0.046	0.047	#N/A		0.121	0.217	0.229	0.233	#N/A
11	3	Monticello Monticello 3	#N/A	#N/A	#N/A	#N/A	0.036		#N/A	#N/A	#N/A	#N/A	0.181
12	4	Sandow Sandow 4	#N/A	#N/A	#N/A	#N/A	0.062		#N/A	#N/A	#N/A	#N/A	0.312
13	171b	Tolk Tolk 171b	0.004	0.006	0.006	0.007	#N/A		0.018	0.032	0.033	0.034	#N/A
14	172b	Tolk Tolk 172b	0.004	0.007	0.007	0.007	#N/A		0.020	0.035	0.036	0.037	#N/A
15	5	WA Parish WA Parish 5	0.012	0.022	0.023	0.023	#N/A		0.062	0.111	0.114	0.117	#N/A
16	6	WA Parish WA Parish 6	0.013	0.024	0.025	0.025	#N/A		0.067	0.120	0.124	0.127	#N/A
17	7	WA Parish WA Parish 7	0.011	0.019	0.020	0.020	#N/A		0.054	0.097	0.099	0.102	#N/A
18	8	WA Parish WA Parish 8	#N/A	#N/A	#N/A	#N/A	0.003		#N/A	#N/A	#N/A	#N/A	0.015
19	1	Welsh Welsh 1	0.012	0.019	0.021	0.022	#N/A		0.059	0.094	0.105	0.109	#N/A
20	2	Welsh Welsh 2	0.012	0.019	0.021	0.022	#N/A		0.060	0.096	0.106	0.111	#N/A
21	3	Welsh Welsh 3	0.012	0.020	0.022	0.023	#N/A		0.063	0.101	0.111	0.116	#N/A

**Big Bend****Visibility modeling results:**

Visibility modeling results:			dv improvement 2018 background (environ)						dv improvement (avg. natural conditions)				
	Unit #	Facility	DSI_low	DSI_high	SDA	WFGD	WFGD_upgrade		DSI_low	DSI_high	SDA	WFGD	WFGD_upgrade
1	1	Big Brown	Big Brown 1	0.012	0.021	0.022	0.023		0.046	0.082	0.086	0.089	#N/A
2	2	Big Brown	Big Brown 2	0.012	0.021	0.022	0.023		0.046	0.082	0.087	0.089	#N/A
3	1	Colet Creek	Colet Creek 1	0.018	0.033	0.034	0.035		0.071	0.128	0.133	0.136	#N/A
4	lim 1	Limestone	Limestone lim 1	#N/A	#N/A	#N/A	#N/A	0.008	#N/A	#N/A	#N/A	#N/A	0.033
5	lim 2	Limestone	Limestone lim 2	#N/A	#N/A	#N/A	#N/A	0.009	#N/A	#N/A	#N/A	#N/A	0.036
6	1	Martin Lake	Martin Lake 1	#N/A	#N/A	#N/A	#N/A	0.008	#N/A	#N/A	#N/A	#N/A	0.030
7	2	Martin Lake	Martin Lake 2	#N/A	#N/A	#N/A	#N/A	0.007	#N/A	#N/A	#N/A	#N/A	0.026
8	3	Martin Lake	Martin Lake 3	#N/A	#N/A	#N/A	#N/A	0.006	#N/A	#N/A	#N/A	#N/A	0.023
9	1	Monticello	Monticello 1	0.003	0.005	0.005	0.006	#N/A	0.011	0.020	0.021	0.022	#N/A
10	2	Monticello	Monticello 2	0.003	0.005	0.005	0.005	#N/A	0.010	0.018	0.019	0.020	#N/A
11	3	Monticello	Monticello 3	#N/A	#N/A	#N/A	#N/A	0.004	#N/A	#N/A	#N/A	#N/A	0.015
12	4	Sandow	Sandow 4	#N/A	#N/A	#N/A	#N/A	0.026	#N/A	#N/A	#N/A	#N/A	0.102
13	171b	Tolk	Tolk 171b	0.002	0.003	0.003	0.003	#N/A	0.007	0.012	0.013	0.013	#N/A
14	172b	Tolk	Tolk 172b	0.002	0.003	0.003	0.004	#N/A	0.008	0.014	0.014	0.014	#N/A
15	5	WA Parish	WA Parish 5	0.007	0.013	0.013	0.014	#N/A	0.028	0.051	0.052	0.054	#N/A
16	6	WA Parish	WA Parish 6	0.008	0.014	0.015	0.015	#N/A	0.031	0.055	0.057	0.058	#N/A
17	7	WA Parish	WA Parish 7	0.006	0.011	0.012	0.012	#N/A	0.025	0.044	0.046	0.047	#N/A
18	8	WA Parish	WA Parish 8	#N/A	#N/A	#N/A	#N/A	0.002	#N/A	#N/A	#N/A	#N/A	0.007
19	1	Welsh	Welsh 1	0.001	0.002	0.002	0.002	#N/A	0.005	0.008	0.008	0.009	#N/A
20	2	Welsh	Welsh 2	0.001	0.002	0.002	0.002	#N/A	0.005	0.008	0.009	0.009	#N/A
21	3	Welsh	Welsh 3	0.001	0.002	0.002	0.002	#N/A	0.005	0.008	0.009	0.009	#N/A



**Guadalupe Mountains****Visibility modeling results:**

			dv improvement 2018 background (environ)					dv improvement (avg. natural conditions)				
Unit #	Facility		DSI_low	DSI_high	SDA	WFGD	WFGD_upgrade	DSI_low	DSI_high	SDA	WFGD	WFGD_upgrade
1	1	Big Brown Big Brown 1	0.014	0.024	0.026	0.027	#N/A	0.054	0.096	0.101	0.105	#N/A
2	2	Big Brown Big Brown 2	0.014	0.025	0.026	0.027	#N/A	0.054	0.097	0.102	0.105	#N/A
3	1	Coleta Creek Coleta Creek 1	0.006	0.010	0.011	0.011	#N/A	0.023	0.041	0.043	0.044	#N/A
4	lim 1	Limestone Limestone lim 1	#N/A	#N/A	#N/A	#N/A	0.009	#N/A	#N/A	#N/A	#N/A	0.037
5	lim 2	Limestone Limestone lim 2	#N/A	#N/A	#N/A	#N/A	0.010	#N/A	#N/A	#N/A	#N/A	0.041
6	1	Martin Lake Martin Lake 1	#N/A	#N/A	#N/A	#N/A	0.010	#N/A	#N/A	#N/A	#N/A	0.041
7	2	Martin Lake Martin Lake 2	#N/A	#N/A	#N/A	#N/A	0.009	#N/A	#N/A	#N/A	#N/A	0.036
8	3	Martin Lake Martin Lake 3	#N/A	#N/A	#N/A	#N/A	0.008	#N/A	#N/A	#N/A	#N/A	0.033
9	1	Monticello Monticello 1	0.004	0.006	0.007	0.007	#N/A	0.014	0.025	0.027	0.027	#N/A
10	2	Monticello Monticello 2	0.003	0.006	0.006	0.006	#N/A	0.013	0.023	0.024	0.025	#N/A
11	3	Monticello Monticello 3	#N/A	#N/A	#N/A	#N/A	0.005	#N/A	#N/A	#N/A	#N/A	0.019
12	4	Sandow Sandow 4	#N/A	#N/A	#N/A	#N/A	0.017	#N/A	#N/A	#N/A	#N/A	0.069
13	171b	Tolk Tolk 171b	0.012	0.022	0.022	0.023	#N/A	0.048	0.085	0.087	0.090	#N/A
14	172b	Tolk Tolk 172b	0.013	0.024	0.024	0.025	#N/A	0.052	0.094	0.095	0.098	#N/A
15	5	WA Parish WA Parish 5	0.003	0.006	0.006	0.006	#N/A	0.013	0.023	0.024	0.024	#N/A
16	6	WA Parish WA Parish 6	0.004	0.006	0.007	0.007	#N/A	0.014	0.025	0.026	0.027	#N/A
17	7	WA Parish WA Parish 7	0.003	0.005	0.005	0.005	#N/A	0.011	0.020	0.021	0.021	#N/A
18	8	WA Parish WA Parish 8	#N/A	#N/A	#N/A	#N/A	0.001	#N/A	#N/A	#N/A	#N/A	0.003
19	1	Welsh Welsh 1	0.002	0.003	0.003	0.003	#N/A	0.007	0.011	0.012	0.012	#N/A
20	2	Welsh Welsh 2	0.002	0.003	0.003	0.003	#N/A	0.007	0.011	0.012	0.012	#N/A
21	3	Welsh Welsh 3	0.002	0.003	0.003	0.003	#N/A	0.007	0.011	0.012	0.013	#N/A

**All other Class I areas modeled (BAND, BOAP, BRET, CACR, CAVE, GICL, GRSA, HEGL, MING, PECO, ROMO, SACR, SAPE, UPBU, WHIT, WHPE)****Visibility modeling results:**

			dv improvement 2018 background (environ)					dv improvement (avg. natural conditions)				
Unit #	Facility		DSI_low	DSI_high	SDA	WFGD	WFGD_upgrade	DSI_low	DSI_high	SDA	WFGD	WFGD_upgrade
1	1	Big Brown Big Brown 1	0.073	0.131	0.138	0.143	#N/A	0.308	0.553	0.584	0.602	#N/A
2	2	Big Brown Big Brown 2	0.073	0.132	0.139	0.143	#N/A	0.309	0.556	0.586	0.604	#N/A
3	1	Coleta Creek Coleta Creek 1	0.026	0.047	0.049	0.050	#N/A	0.092	0.165	0.171	0.175	#N/A
4	lim 1	Limestone Limestone lim 1	#N/A	#N/A	#N/A	#N/A	0.046	#N/A	#N/A	#N/A	#N/A	0.197
5	lim 2	Limestone Limestone lim 2	#N/A	#N/A	#N/A	#N/A	0.051	#N/A	#N/A	#N/A	#N/A	0.218
6	1	Martin Lake Martin Lake 1	#N/A	#N/A	#N/A	#N/A	0.173	#N/A	#N/A	#N/A	#N/A	0.800
7	2	Martin Lake Martin Lake 2	#N/A	#N/A	#N/A	#N/A	0.149	#N/A	#N/A	#N/A	#N/A	0.691
8	3	Martin Lake Martin Lake 3	#N/A	#N/A	#N/A	#N/A	0.137	#N/A	#N/A	#N/A	#N/A	0.632
9	1	Monticello Monticello 1	0.063	0.114	0.120	0.123	#N/A	0.290	0.520	0.549	0.561	#N/A
10	2	Monticello Monticello 2	0.058	0.105	0.111	0.113	#N/A	0.267	0.479	0.505	0.515	#N/A
11	3	Monticello Monticello 3	#N/A	#N/A	#N/A	#N/A	0.087	#N/A	#N/A	#N/A	#N/A	0.398
12	4	Sandow Sandow 4	#N/A	#N/A	#N/A	#N/A	0.074	#N/A	#N/A	#N/A	#N/A	0.277
13	171b	Tolk Tolk 171b	0.066	0.119	0.121	0.125	#N/A	0.214	0.385	0.392	0.404	#N/A
14	172b	Tolk Tolk 172b	0.073	0.131	0.132	0.137	#N/A	0.236	0.424	0.427	0.442	#N/A
15	5	WA Parish WA Parish 5	0.024	0.044	0.045	0.046	#N/A	0.098	0.176	0.181	0.186	#N/A
16	6	WA Parish WA Parish 6	0.026	0.047	0.049	0.050	#N/A	0.106	0.191	0.197	0.202	#N/A
17	7	WA Parish WA Parish 7	0.021	0.038	0.039	0.040	#N/A	0.085	0.154	0.158	0.162	#N/A
18	8	WA Parish WA Parish 8	#N/A	#N/A	#N/A	#N/A	0.006	#N/A	#N/A	#N/A	#N/A	0.024
19	1	Welsh Welsh 1	0.032	0.051	0.056	0.058	#N/A	0.146	0.233	0.258	0.269	#N/A
20	2	Welsh Welsh 2	0.032	0.052	0.057	0.059	#N/A	0.149	0.238	0.263	0.274	#N/A
21	3	Welsh Welsh 3	0.034	0.054	0.060	0.062	#N/A	0.155	0.248	0.275	0.287	#N/A

**Control cost (\$/ton)**

Unit #	Facility		DSI_low	DSI_high	SDA	WFGD	WFGD_upgrade*
1	Big Brown	Big Brown 1	\$ 2,223	\$ 2,996	\$ 1,377	\$ 1,255	#N/A
2	Big Brown	Big Brown 2	\$ 2,201	\$ 2,944	\$ 1,373	\$ 1,257	#N/A
1	Coleta Creek	Coleta Creek 1	\$ 2,792	\$ 3,460	\$ 2,356	\$ 2,278	#N/A

lim 1	Limestone	Limestone lim 1	#N/A	#N/A	#N/A	#N/A	\$	500
lim 2	Limestone	Limestone lim 2	#N/A	#N/A	#N/A	#N/A	\$	500
1	Martin Lake	Martin Lake 1	#N/A	#N/A	#N/A	#N/A	\$	500
2	Martin Lake	Martin Lake 2	#N/A	#N/A	#N/A	#N/A	\$	500
3	Martin Lake	Martin Lake 3	#N/A	#N/A	#N/A	#N/A	\$	500
1	Monticello	Monticello 1	\$ 2,728	\$ 3,420	\$ 2,012	\$ 1,937	#N/A	
2	Monticello	Monticello 2	\$ 3,086	\$ 3,845	\$ 2,254	\$ 2,170	#N/A	
3	Monticello	Monticello 3	#N/A	#N/A	#N/A	#N/A	\$	500
4	Sadow	Sadow 4	#N/A	#N/A	#N/A	#N/A	\$	500
171b	Tolk	Tolk 171b	\$ 3,084	\$ 3,592	\$ 3,178	\$ 3,204	#N/A	
172b	Tolk	Tolk 172b	\$ 2,828	\$ 3,221	\$ 2,998	\$ 3,019	#N/A	
5	WA Parish	WA Parish 5	\$ 2,559	\$ 2,995	\$ 2,441	\$ 2,389	#N/A	
6	WA Parish	WA Parish 6	\$ 2,699	\$ 3,229	\$ 2,401	\$ 2,334	#N/A	
7	WA Parish	WA Parish 7	\$ 2,805	\$ 3,296	\$ 2,559	\$ 2,542	#N/A	
8	WA Parish	WA Parish 8	#N/A	#N/A	#N/A	#N/A	\$	500
1	Welsh	Welsh 1	\$ 3,718	\$ 4,019	\$ 3,489	\$ 3,508	#N/A	
2	Welsh	Welsh 2	\$ 3,611	\$ 3,879	\$ 3,438	\$ 3,454	#N/A	
3	Welsh	Welsh 3	\$ 3,690	\$ 3,998	\$ 3,368	\$ 3,379	#N/A	

\* approximate cost/ placeholder actual cost based on CBI data

SDA

Baseline  
index

3yr average 2009-2013 (eliminated) Choose baseline

2

Change in extinction (Mm-1)

4

5

6

7

8

9

10

No.	Unit #	Facility		Baseline emissions	controlled emissions	tons reduced	BAND	BIBE	BOAP	BRET	CACR	CAVE	GICL
1	1	Big Brown	Big Brown 1	30667.22033	0	30667.22033	0.0035	0.1363	0.0107	0.0494	0.3943	0.1510	0.0065
2	2	Big Brown	Big Brown 2	30814.37367	0	30814.37367	0.0035	0.1370	0.0108	0.0496	0.3962	0.1517	0.0066
3	1	Coletto Creek	Coletto Creek 1	16059.31067	0	16059.31067	0.0032	0.2133	0.0168	0.0082	0.0127	0.0646	0.0137
4	lim 1	Limestone	Limestone lim 1	10912.50933	0	10912.50933	0.0015	0.0631	0.0052	0.0102	0.1932	0.0672	0.0034
5	lim 2	Limestone	Limestone lim 2	11946.36067	0	11946.36067	0.0017	0.0691	0.0057	0.0111	0.2115	0.0735	0.0037
6	1	Martin Lake	Martin Lake 1	24494.92533	0	24494.92533	0.0017	0.0524	0.0050	0.0771	1.1378	0.0688	0.0035
7	2	Martin Lake	Martin Lake 2	21580.41733	0	21580.41733	0.0015	0.0462	0.0044	0.0679	1.0024	0.0606	0.0031
8	3	Martin Lake	Martin Lake 3	19940.02	0	19940.02	0.0014	0.0426	0.0041	0.0628	0.9262	0.0560	0.0029
9	1	Monticello	Monticello 1	17864.781	0	17864.781	0.0018	0.0334	0.0033	0.0550	0.5905	0.0393	0.0019
10	2	Monticello	Monticello 2	16429.34767	0	16429.34767	0.0017	0.0307	0.0030	0.0506	0.5430	0.0362	0.0017
11	3	Monticello	Monticello 3	13856.60833	0	13856.60833	0.0014	0.0259	0.0025	0.0427	0.4580	0.0305	0.0015
12	4	Sandow	Sandow 4	22289.21167	0	22289.21167	0.0051	0.1931	0.0192	0.0190	0.1088	0.1225	0.0119
13	171b	Tolk	Tolk 171b	10031.389	0	10031.389	0.0418	0.0205	0.0237	0.0102	0.0112	0.1340	0.0129
14	172b	Tolk	Tolk 172b	11033.65033	0	11033.65033	0.0460	0.0226	0.0261	0.0112	0.0123	0.1474	0.0142
15	5	WA Parish	WA Parish 5	14157.28967	0	14157.28967	0.0016	0.0848	0.0115	0.0103	0.1280	0.0363	0.0077
16	6	WA Parish	WA Parish 6	15306.79967	0	15306.79967	0.0017	0.0917	0.0124	0.0111	0.1384	0.0392	0.0083
17	7	WA Parish	WA Parish 7	12334.96967	0	12334.96967	0.0014	0.0739	0.0100	0.0090	0.1116	0.0316	0.0067
18	8	WA Parish	WA Parish 8	2585.883333	0	2585.883333	0.0003	0.0155	0.0021	0.0019	0.0234	0.0066	0.0014
19	1	Welsh	Welsh 1	8083.911	0	8083.911	0.0009	0.0141	0.0017	0.0252	0.3199	0.0185	0.0008
20	2	Welsh	Welsh 2	8255.512667	0	8255.512667	0.0009	0.0144	0.0017	0.0258	0.3267	0.0189	0.0008
21	3	Welsh	Welsh 3	8608.802	0	8608.802	0.0010	0.0150	0.0018	0.0269	0.3407	0.0197	0.0009

327253.2933 0.12351264 1.395513 0.181889 0.635129 7.386705 1.374042 0.114188

change in dv at 2018 environ (PSAT run) background

4

5

6

7

8

9

10

No.	Unit #	Facility		Baseline emissions	controlled emissions	tons reduced	BAND	BIBE	BOAP	BRET	CACR	CAVE	GICL
1	1	Big Brown	Big Brown 1	30667.22033	0	30667.22033	0.0010	0.0233	0.0025	0.0060	0.0363	0.0271	0.0016
2	2	Big Brown	Big Brown 2	30814.37367	0	30814.37367	0.0010	0.0234	0.0025	0.0060	0.0365	0.0272	0.0016
3	1	Coletto Creek	Coletto Creek 1	16059.31067	0	16059.31067	0.0009	0.0365	0.0039	0.0010	0.0012	0.0116	0.0032
4	lim 1	Limestone	Limestone lim 1	10912.50933	0	10912.50933	0.0004	0.0108	0.0012	0.0012	0.0178	0.0120	0.0008
5	lim 2	Limestone	Limestone lim 2	11946.36067	0	11946.36067	0.0005	0.0118	0.0013	0.0014	0.0195	0.0132	0.0009
6	1	Martin Lake	Martin Lake 1	24494.92533	0	24494.92533	0.0005	0.0089	0.0012	0.0094	0.1052	0.0123	0.0008
7	2	Martin Lake	Martin Lake 2	21580.41733	0	21580.41733	0.0004	0.0079	0.0010	0.0083	0.0927	0.0109	0.0007
8	3	Martin Lake	Martin Lake 3	19940.02	0	19940.02	0.0004	0.0073	0.0010	0.0076	0.0856	0.0100	0.0007
9	1	Monticello	Monticello 1	17864.781	0	17864.781	0.0005	0.0057	0.0008	0.0067	0.0545	0.0071	0.0005
10	2	Monticello	Monticello 2	16429.34767	0	16429.34767	0.0005	0.0052	0.0007	0.0062	0.0501	0.0065	0.0004
11	3	Monticello	Monticello 3	13856.60833	0	13856.60833	0.0004	0.0044	0.0006	0.0052	0.0422	0.0055	0.0003
12	4	Sandow	Sandow 4	22289.21167	0	22289.21167	0.0015	0.0330	0.0045	0.0023	0.0100	0.0220	0.0028
13	171b	Tolk	Tolk 171b	10031.389	0	10031.389	0.0122	0.0035	0.0056	0.0012	0.0010	0.0240	0.0031
14	172b	Tolk	Tolk 172b	11033.65033	0	11033.65033	0.0134	0.0039	0.0061	0.0014	0.0011	0.0265	0.0034
15	5	WA Parish	WA Parish 5	14157.28967	0	14157.28967	0.0005	0.0145	0.0027	0.0013	0.0118	0.0065	0.0018
16	6	WA Parish	WA Parish 6	15306.79967	0	15306.79967	0.0005	0.0157	0.0029	0.0014	0.0127	0.0070	0.0020
17	7	WA Parish	WA Parish 7	12334.96967	0	12334.96967	0.0004	0.0126	0.0023	0.0011	0.0103	0.0057	0.0016
18	8	WA Parish	WA Parish 8	2585.883333	0	2585.883333	0.0001	0.0026	0.0005	0.0002	0.0022	0.0012	0.0003
19	1	Welsh	Welsh 1	8083.911	0	8083.911	0.0003	0.0024	0.0004	0.0031	0.0295	0.0033	0.0002
20	2	Welsh	Welsh 2	8255.512667	0	8255.512667	0.0003	0.0025	0.0004	0.0031	0.0301	0.0034	0.0002

11	12	13	14	15	16	17	18	19	20	21	22	
GRSA	GUMO	HEGL	MING	PECO	ROMO	SACR	SAPE	UPBU	WHIT	WHPE	WIMO	all but WIMO and TX
0.0012	0.1510	0.2191	0.0284	0.0033	0.0019	0.0848	0.0047	0.1470	0.0530	0.0033	0.7557	1.1621
0.0012	0.1517	0.2202	0.0285	0.0033	0.0019	0.0852	0.0047	0.1477	0.0533	0.0033	0.7593	1.1677
0.0014	0.0646	0.0136	0.0058	0.0052	0.0011	0.0596	0.0061	0.0335	0.0357	0.0052	0.3517	0.2865
0.0006	0.0672	0.0603	0.0105	0.0010	0.0007	0.0345	0.0018	0.0653	0.0212	0.0010	0.2917	0.4775
0.0006	0.0735	0.0660	0.0115	0.0011	0.0008	0.0378	0.0020	0.0715	0.0232	0.0011	0.3194	0.5227
0.0005	0.0688	0.2854	0.0347	0.0017	0.0008	0.0357	0.0023	0.2908	0.0268	0.0017	0.4631	1.9743
0.0005	0.0606	0.2514	0.0305	0.0015	0.0007	0.0315	0.0020	0.2562	0.0236	0.0015	0.4080	1.7394
0.0004	0.0560	0.2323	0.0282	0.0014	0.0007	0.0291	0.0019	0.2367	0.0218	0.0014	0.3770	1.6072
0.0005	0.0393	0.2649	0.0250	0.0015	0.0010	0.0407	0.0015	0.1380	0.0251	0.0015	0.4408	1.1915
0.0004	0.0362	0.2436	0.0230	0.0014	0.0009	0.0374	0.0014	0.1269	0.0231	0.0014	0.4054	1.0958
0.0004	0.0305	0.2054	0.0194	0.0012	0.0008	0.0315	0.0012	0.1070	0.0195	0.0012	0.3419	0.9242
0.0006	0.1225	0.0281	0.0069	0.0058	0.0025	0.0784	0.0083	0.0975	0.0658	0.0058	0.6638	0.5862
0.0227	0.1340	0.0158	0.0026	0.0192	0.0119	0.1829	0.0197	0.0038	0.0939	0.0192	0.0594	0.6256
0.0249	0.1474	0.0174	0.0029	0.0211	0.0131	0.2012	0.0217	0.0042	0.1033	0.0211	0.0653	0.6881
0.0007	0.0363	0.0217	0.0154	0.0023	0.0000	0.0270	0.0028	0.0719	0.0229	0.0023	0.2056	0.3624
0.0007	0.0392	0.0235	0.0166	0.0025	0.0000	0.0292	0.0030	0.0777	0.0248	0.0025	0.2223	0.3918
0.0006	0.0316	0.0189	0.0134	0.0020	0.0000	0.0235	0.0024	0.0626	0.0200	0.0020	0.1792	0.3157
0.0001	0.0066	0.0040	0.0028	0.0004	0.0000	0.0049	0.0005	0.0131	0.0042	0.0004	0.0376	0.0662
0.0001	0.0185	0.1129	0.0100	0.0007	0.0006	0.0192	0.0007	0.0774	0.0113	0.0007	0.1972	0.6004
0.0001	0.0189	0.1153	0.0102	0.0007	0.0006	0.0196	0.0007	0.0791	0.0115	0.0007	0.2014	0.6132
0.0002	0.0197	0.1202	0.0106	0.0007	0.0006	0.0204	0.0007	0.0825	0.0120	0.0007	0.2100	0.6394
0.058664	1.374042	2.539913	0.336514	0.077968	0.04064	1.113967	0.090046	2.190423	0.696079	0.077968	6.955742	

11	12	13	14	15	16	17	18	19	20	21	22	
GRSA	GUMO	HEGL	MING	PECO	ROMO	SACR	SAPE	UPBU	WHIT	WHPE	WIMO	all but WIMO and TX largest
0.0003	0.0271	0.0205	0.0033	0.0011	0.0004	0.0156	0.0016	0.0147	0.0126	0.0011	0.0898	0.1457
0.0003	0.0272	0.0206	0.0033	0.0011	0.0004	0.0156	0.0016	0.0148	0.0127	0.0011	0.0902	0.1464
0.0003	0.0116	0.0013	0.0007	0.0017	0.0002	0.0109	0.0021	0.0034	0.0085	0.0017	0.0417	0.0527
0.0001	0.0120	0.0056	0.0012	0.0003	0.0002	0.0063	0.0006	0.0065	0.0051	0.0003	0.0346	0.0599
0.0001	0.0132	0.0062	0.0013	0.0003	0.0002	0.0069	0.0007	0.0071	0.0055	0.0003	0.0378	0.0655
0.0001	0.0123	0.0268	0.0040	0.0006	0.0002	0.0066	0.0008	0.0291	0.0064	0.0006	0.0549	0.2045
0.0001	0.0109	0.0236	0.0035	0.0005	0.0002	0.0058	0.0007	0.0256	0.0056	0.0005	0.0484	0.1801
0.0001	0.0100	0.0218	0.0033	0.0005	0.0001	0.0053	0.0006	0.0237	0.0052	0.0005	0.0447	0.1663
0.0001	0.0071	0.0248	0.0029	0.0005	0.0002	0.0075	0.0005	0.0138	0.0060	0.0005	0.0523	0.1268
0.0001	0.0065	0.0228	0.0027	0.0005	0.0002	0.0069	0.0005	0.0127	0.0055	0.0005	0.0481	0.1166
0.0001	0.0055	0.0193	0.0022	0.0004	0.0002	0.0058	0.0004	0.0107	0.0046	0.0004	0.0405	0.0983
0.0001	0.0220	0.0026	0.0008	0.0019	0.0005	0.0144	0.0029	0.0097	0.0157	0.0019	0.0788	0.0936
0.0053	0.0240	0.0015	0.0003	0.0062	0.0026	0.0336	0.0068	0.0004	0.0224	0.0062	0.0070	0.1324
0.0059	0.0265	0.0016	0.0003	0.0068	0.0028	0.0370	0.0075	0.0004	0.0247	0.0068	0.0077	0.1456
0.0002	0.0065	0.0020	0.0018	0.0007	0.0000	0.0050	0.0010	0.0072	0.0055	0.0007	0.0244	0.0486
0.0002	0.0070	0.0022	0.0019	0.0008	0.0000	0.0054	0.0010	0.0078	0.0059	0.0008	0.0263	0.0525
0.0001	0.0057	0.0018	0.0015	0.0006	0.0000	0.0043	0.0008	0.0063	0.0048	0.0006	0.0212	0.0423
0.0000	0.0012	0.0004	0.0003	0.0001	0.0000	0.0009	0.0002	0.0013	0.0010	0.0001	0.0044	0.0089
0.0000	0.0033	0.0106	0.0011	0.0002	0.0001	0.0035	0.0002	0.0077	0.0027	0.0002	0.0233	0.0632
0.0000	0.0034	0.0108	0.0012	0.0002	0.0001	0.0036	0.0002	0.0079	0.0028	0.0002	0.0238	0.0645
												second largest
												0.0898 WIMO
												0.036347 CACR
												0.036522 CACR
												0.03645 BIBE
												0.011588 CAVE
												0.017794 CACR
												0.017794 CACR
												0.019481 CACR
												0.019481 CACR
												0.054922 WIMO
												0.105237 CACR
												0.048371 WIMO
												0.092657 CACR
												0.044686 WIMO
												0.085584 CACR
												0.052279 WIMO
												0.054475 CACR
												0.048068 WIMO
												0.050087 CACR
												0.040526 WIMO
												0.042227 CACR
												0.033005 BIBE
												0.021984 CAVE
												0.024048 CAVE
												0.033626 SACR
												0.026454 CAVE
												0.036992 SACR
												0.014482 BIBE
												0.011787 CACR
												0.015659 BIBE
												0.012745 CACR
												0.012617 BIBE
												0.010269 CACR
												0.002644 BIBE
												0.002152 CACR
												0.023347 WIMO
												0.029477 CACR
												0.023844 WIMO
												0.030103 CACR

21	3	Welsh	Welsh 3	8608.802	0	8608.802	0.0003	0.0026	0.0004	0.0033	0.0314	0.0035	0.0002
						327253.2933	0.03591583	0.238324	0.042611	0.077305	0.681688	0.246567	0.02704

## change in dv at annual average Natural Conditions background

45678910													
No.	Unit #	Facility		Baseline emissions	controlled emiss	tons reduced	BAND	BIBE	BOAP	BRET	CACR	CAVE	GICL
1	1	Big Brown	Big Brown 1	30667.22033	0	30667.22033	0.0025	0.0908	0.0071	0.0216	0.1824	0.1068	0.0048
2	2	Big Brown	Big Brown 2	30814.37367	0	30814.37367	0.0025	0.0913	0.0071	0.0217	0.1833	0.1073	0.0049
3	1	Coletto Creek	Coletto Creek 1	16059.31067	0	16059.31067	0.0023	0.1417	0.0111	0.0036	0.0059	0.0458	0.0101
4	lim 1	Limestone	Limestone lim 1	10912.50933	0	10912.50933	0.0011	0.0421	0.0035	0.0044	0.0898	0.0476	0.0025
5	lim 2	Limestone	Limestone lim 2	11946.36067	0	11946.36067	0.0012	0.0461	0.0038	0.0049	0.0982	0.0521	0.0027
6	1	Martin Lake	Martin Lake 1	24494.92533	0	24494.92533	0.0012	0.0350	0.0033	0.0337	0.5175	0.0488	0.0026
7	2	Martin Lake	Martin Lake 2	21580.41733	0	21580.41733	0.0011	0.0308	0.0029	0.0297	0.4573	0.0430	0.0023
8	3	Martin Lake	Martin Lake 3	19940.02	0	19940.02	0.0010	0.0285	0.0027	0.0274	0.4232	0.0397	0.0021
9	1	Monticello	Monticello 1	17864.781	0	17864.781	0.0013	0.0223	0.0022	0.0240	0.2719	0.0279	0.0014
10	2	Monticello	Monticello 2	16429.34767	0	16429.34767	0.0012	0.0205	0.0020	0.0221	0.2503	0.0257	0.0013
11	3	Monticello	Monticello 3	13856.60833	0	13856.60833	0.0010	0.0173	0.0017	0.0186	0.2115	0.0217	0.0011
12	4	Sandow	Sandow 4	22289.21167	0	22289.21167	0.0036	0.1284	0.0127	0.0083	0.0507	0.0867	0.0088
13	171b	Tolk	Tolk 171b	10031.389	0	10031.389	0.0298	0.0137	0.0156	0.0045	0.0052	0.0948	0.0095
14	172b	Tolk	Tolk 172b	11033.65033	0	11033.65033	0.0328	0.0151	0.0172	0.0049	0.0057	0.1042	0.0105
15	5	WA Parish	WA Parish 5	14157.28967	0	14157.28967	0.0012	0.0566	0.0076	0.0045	0.0596	0.0257	0.0057
16	6	WA Parish	WA Parish 6	15306.79967	0	15306.79967	0.0012	0.0612	0.0082	0.0049	0.0644	0.0278	0.0061
17	7	WA Parish	WA Parish 7	12334.96967	0	12334.96967	0.0010	0.0493	0.0066	0.0039	0.0519	0.0224	0.0049
18	8	WA Parish	WA Parish 8	2585.883333	0	2585.883333	0.0002	0.0104	0.0014	0.0008	0.0109	0.0047	0.0010
19	1	Welsh	Welsh 1	8083.911	0	8083.911	0.0006	0.0094	0.0011	0.0110	0.1482	0.0131	0.0006
20	2	Welsh	Welsh 2	8255.512667	0	8255.512667	0.0007	0.0096	0.0011	0.0113	0.1513	0.0134	0.0006
21	3	Welsh	Welsh 3	8608.802	0	8608.802	0.0007	0.0101	0.0012	0.0117	0.1578	0.0140	0.0006
						327253.2933	0.08810501	0.93048	0.1199	0.277353	3.397002	0.973432	0.084247

## change in dv at 20%W NC

				45678910									
No.	Unit #	Facility		Baseline emissions	controlled emiss	tons reduced	BAND	BIBE	BOAP	BRET	CACR	CAVE	GICL
1	1	Big Brown	Big Brown 1	30667.22033	0	30667.22033	0.0018	0.0664	0.0055	0.0150	0.1231	0.0773	0.0034
2	2	Big Brown	Big Brown 2	30814.37367	0	30814.37367	0.0019	0.0667	0.0055	0.0150	0.1237	0.0777	0.0034
3	1	Coletto Creek	Coletto Creek 1	16059.31067	0	16059.31067	0.0017	0.1037	0.0086	0.0025	0.0040	0.0332	0.0070
4	lim 1	Limestone	Limestone lim 1	10912.50933	0	10912.50933	0.0008	0.0308	0.0027	0.0031	0.0605	0.0345	0.0017
5	lim 2	Limestone	Limestone lim 2	11946.36067	0	11946.36067	0.0009	0.0337	0.0029	0.0034	0.0662	0.0377	0.0019
6	1	Martin Lake	Martin Lake 1	24494.92533	0	24494.92533	0.0009	0.0256	0.0026	0.0234	0.3512	0.0353	0.0018
7	2	Martin Lake	Martin Lake 2	21580.41733	0	21580.41733	0.0008	0.0225	0.0023	0.0206	0.3100	0.0311	0.0016
8	3	Martin Lake	Martin Lake 3	19940.02	0	19940.02	0.0007	0.0208	0.0021	0.0190	0.2868	0.0288	0.0015
9	1	Monticello	Monticello 1	17864.781	0	17864.781	0.0010	0.0163	0.0017	0.0167	0.1838	0.0202	0.0010
10	2	Monticello	Monticello 2	16429.34767	0	16429.34767	0.0009	0.0150	0.0015	0.0153	0.1691	0.0186	0.0009
11	3	Monticello	Monticello 3	13856.60833	0	13856.60833	0.0008	0.0126	0.0013	0.0129	0.1428	0.0157	0.0008
12	4	Sandow	Sandow 4	22289.21167	0	22289.21167	0.0027	0.0940	0.0098	0.0058	0.0341	0.0628	0.0061
13	171b	Tolk	Tolk 171b	10031.389	0	10031.389	0.0223	0.0100	0.0121	0.0031	0.0035	0.0686	0.0066
14	172b	Tolk	Tolk 172b	11033.65033	0	11033.65033	0.0246	0.0110	0.0133	0.0034	0.0039	0.0755	0.0073

0.0000	0.0035	0.0113	0.0012	0.0002	0.0001	0.0037	0.0002	0.0082	0.0029	0.0002	0.0249
0.013835	0.246567	0.23807	0.038854	0.025144	0.008713	0.204622	0.031081	0.218953	0.166012	0.025144	0.824923

0.0673    0.0314 CACR    0.024865 WIMO    0.031394 CACR

11	12	13	14	15	16	17	18	19	20	21	22
GRSA	GUMO	HEGL	MING	PECO	ROMO	SACR	SAPE	UPBU	WHIT	WHPE	WIMO
0.0009	0.1068	0.1022	0.0129	0.0026	0.0014	0.0558	0.0037	0.0690	0.0380	0.0026	0.4446
0.0009	0.1073	0.1027	0.0129	0.0026	0.0014	0.0561	0.0038	0.0693	0.0382	0.0026	0.4467
0.0010	0.0458	0.0064	0.0026	0.0041	0.0008	0.0393	0.0049	0.0158	0.0256	0.0041	0.2094
0.0004	0.0476	0.0282	0.0048	0.0008	0.0005	0.0227	0.0014	0.0307	0.0152	0.0008	0.1740
0.0004	0.0521	0.0309	0.0052	0.0008	0.0006	0.0249	0.0016	0.0336	0.0167	0.0008	0.1903
0.0004	0.0488	0.1330	0.0157	0.0014	0.0006	0.0235	0.0018	0.1360	0.0192	0.0014	0.2748
0.0003	0.0430	0.1172	0.0139	0.0012	0.0005	0.0207	0.0016	0.1199	0.0169	0.0012	0.2425
0.0003	0.0397	0.1084	0.0128	0.0011	0.0005	0.0192	0.0015	0.1108	0.0156	0.0011	0.2242
0.0003	0.0279	0.1235	0.0113	0.0012	0.0007	0.0268	0.0012	0.0647	0.0180	0.0012	0.2618
0.0003	0.0257	0.1136	0.0104	0.0011	0.0007	0.0247	0.0011	0.0596	0.0166	0.0011	0.2410
0.0003	0.0217	0.0959	0.0088	0.0009	0.0006	0.0208	0.0009	0.0503	0.0140	0.0009	0.2036
0.0004	0.0867	0.0132	0.0031	0.0046	0.0018	0.0516	0.0066	0.0458	0.0472	0.0046	0.3915
0.0160	0.0948	0.0074	0.0012	0.0152	0.0086	0.1200	0.0158	0.0018	0.0672	0.0152	0.0357
0.0176	0.1042	0.0081	0.0013	0.0167	0.0094	0.1319	0.0174	0.0020	0.0739	0.0167	0.0392
0.0005	0.0257	0.0102	0.0070	0.0018	0.0000	0.0178	0.0023	0.0338	0.0164	0.0018	0.1230
0.0005	0.0278	0.0110	0.0076	0.0020	0.0000	0.0192	0.0024	0.0365	0.0178	0.0020	0.1329
0.0004	0.0224	0.0089	0.0061	0.0016	0.0000	0.0155	0.0020	0.0294	0.0143	0.0016	0.1072
0.0001	0.0047	0.0019	0.0013	0.0003	0.0000	0.0033	0.0004	0.0062	0.0030	0.0003	0.0226
0.0001	0.0131	0.0528	0.0045	0.0005	0.0004	0.0126	0.0005	0.0364	0.0081	0.0005	0.1179
0.0001	0.0134	0.0539	0.0046	0.0005	0.0004	0.0129	0.0005	0.0372	0.0083	0.0005	0.1204
0.0001	0.0140	0.0562	0.0048	0.0006	0.0004	0.0135	0.0006	0.0388	0.0086	0.0006	0.1255
0.041454	0.973432	1.185484	0.152733	0.061692	0.02926	0.732783	0.072138	1.027336	0.499039	0.061692	4.128668

all but WIMO and TX largest

second largest

0.6142	0.4446 WIMO	0.182383 CACR	0.182383 CACR
0.6171	0.4467 WIMO	0.183251 CACR	0.183251 CACR
0.1834	0.2094 WIMO	0.141732 BIBE	0.045817 CAVE
0.2544	0.1740 WIMO	0.089783 CACR	0.089783 CACR
0.2785	0.1903 WIMO	0.098247 CACR	0.098247 CACR
0.9399	0.5175 CACR	0.274772 WIMO	0.517451 CACR
0.8297	0.4573 CACR	0.242472 WIMO	0.457267 CACR
0.7675	0.4232 CACR	0.224246 WIMO	0.423234 CACR
0.5778	0.2719 CACR	0.261755 WIMO	0.271874 CACR
0.5317	0.2503 CACR	0.240974 WIMO	0.2503 CACR
0.4490	0.2115 CACR	0.20362 WIMO	0.211516 CACR
0.3496	0.3915 WIMO	0.128444 BIBE	0.086696 CAVE
0.4278	0.1200 SACR	0.094791 CAVE	0.120002 SACR
0.4704	0.1319 SACR	0.104212 CAVE	0.131913 SACR
0.1958	0.1230 WIMO	0.059584 CACR	0.059584 CACR
0.2117	0.1329 WIMO	0.064406 CACR	0.064406 CACR
0.1706	0.1072 WIMO	0.051934 CACR	0.051934 CACR
0.0358	0.0226 WIMO	0.01091 CACR	0.01091 CACR
0.2913	0.1482 CACR	0.117915 WIMO	0.148213 CACR
0.2974	0.1513 CACR	0.120403 WIMO	0.151335 CACR
0.3101	0.1578 CACR	0.125524 WIMO	0.157761 CACR

11	12	13	14	15	16	17	18	19	20	21	22
GRSA	GUMO	HEGL	MING	PECO	ROMO	SACR	SAPE	UPBU	WHIT	WHPE	WIMO
0.0006	0.0773	0.0705	0.0082	0.0018	0.0009	0.0428	0.0026	0.0461	0.0268	0.0018	0.3496
0.0006	0.0777	0.0709	0.0082	0.0018	0.0009	0.0430	0.0026	0.0463	0.0270	0.0018	0.3513
0.0007	0.0332	0.0044	0.0017	0.0028	0.0005	0.0301	0.0035	0.0105	0.0181	0.0028	0.1642
0.0003	0.0345	0.0195	0.0030	0.0005	0.0003	0.0174	0.0010	0.0205	0.0107	0.0005	0.1364
0.0003	0.0377	0.0213	0.0033	0.0006	0.0004	0.0191	0.0011	0.0224	0.0117	0.0006	0.1492
0.0003	0.0353	0.0918	0.0100	0.0009	0.0004	0.0181	0.0013	0.0910	0.0135	0.0009	0.2157
0.0002	0.0311	0.0809	0.0088	0.0008	0.0004	0.0159	0.0011	0.0802	0.0119	0.0008	0.1903
0.0002	0.0288	0.0748	0.0082	0.0008	0.0003	0.0147	0.0011	0.0741	0.0110	0.0008	0.1759
0.0002	0.0202	0.0852	0.0072	0.0008	0.0005	0.0206	0.0008	0.0433	0.0127	0.0008	0.2054
0.0002	0.0186	0.0784	0.0066	0.0008	0.0005	0.0189	0.0008	0.0398	0.0117	0.0008	0.1891
0.0002	0.0157	0.0661	0.0056	0.0006	0.0004	0.0160	0.0007	0.0336	0.0099	0.0006	0.1597
0.0003	0.0628	0.0091	0.0020	0.0031	0.0012	0.0396	0.0047	0.0306	0.0333	0.0031	0.3077
0.0116	0.0686	0.0051	0.0007	0.0104	0.0058	0.0921	0.0111	0.0012	0.0475	0.0104	0.0279
0.0128	0.0755	0.0056	0.0008	0.0115	0.0064	0.1013	0.0123	0.0013	0.0522	0.0115	0.0307

all but WIMO and TX

0.4283  
0.4304  
0.1321  
0.1772  
0.1939  
0.6433  
0.5675  
0.5247  
0.3965  
0.3648  
0.3079  
0.2483  
0.3124  
0.3436

15	5	WA Parish	WA Parish 5	14157.28967	0	14157.28967	0.0009	0.0414	0.0059	0.0031	0.0401	0.0186	0.0039
16	6	WA Parish	WA Parish 6	15306.79967	0	15306.79967	0.0009	0.0447	0.0063	0.0034	0.0434	0.0201	0.0043
17	7	WA Parish	WA Parish 7	12334.96967	0	12334.96967	0.0008	0.0361	0.0051	0.0027	0.0350	0.0162	0.0034
18	8	WA Parish	WA Parish 8	2585.883333	0	2585.883333	0.0002	0.0076	0.0011	0.0006	0.0073	0.0034	0.0007
19	1	Welsh	Welsh 1	8083.911	0	8083.911	0.0005	0.0069	0.0009	0.0076	0.1000	0.0095	0.0004
20	2	Welsh	Welsh 2	8255.512667	0	8255.512667	0.0005	0.0070	0.0009	0.0078	0.1021	0.0097	0.0004
21	3	Welsh	Welsh 3	8608.802	0	8608.802	0.0005	0.0073	0.0009	0.0081	0.1064	0.0101	0.0004
327253.2933							0.06600778	0.680185	0.092767	0.192529	2.297176	0.704573	0.05863

## change in dv at 2018 Environ projected

														4	5	6	7	8	9	10
No.	Unit #	Facility		Baseline emissions	controlled emiss	tons reduced	BAND	BIBE	BOAP	BRET	CACR	CAVE	GICL							
1	1	Big Brown	Big Brown 1	30667.22033	0	30667.22033	0.0010	0.0254	0.0028	#NUM!	0.0394	0.0295	0.0018							
2	2	Big Brown	Big Brown 2	30814.37367	0	30814.37367	0.0010	0.0256	0.0028	#NUM!	0.0396	0.0296	0.0018							
3	1	Coletto Creek	Coletto Creek 1	16059.31067	0	16059.31067	0.0010	0.0398	0.0043	#NUM!	0.0013	0.0126	0.0038							
4	lim 1	Limestone	Limestone lim 1	10912.50933	0	10912.50933	0.0004	0.0118	0.0014	#NUM!	0.0193	0.0131	0.0009							
5	lim 2	Limestone	Limestone lim 2	11946.36067	0	11946.36067	0.0005	0.0129	0.0015	#NUM!	0.0211	0.0143	0.0010							
6	1	Martin Lake	Martin Lake 1	24494.92533	0	24494.92533	0.0005	0.0098	0.0013	#NUM!	0.1142	0.0134	0.0010							
7	2	Martin Lake	Martin Lake 2	21580.41733	0	21580.41733	0.0004	0.0086	0.0011	#NUM!	0.1005	0.0118	0.0009							
8	3	Martin Lake	Martin Lake 3	19940.02	0	19940.02	0.0004	0.0080	0.0011	#NUM!	0.0928	0.0109	0.0008							
9	1	Monticello	Monticello 1	17864.781	0	17864.781	0.0005	0.0062	0.0008	#NUM!	0.0591	0.0077	0.0005							
10	2	Monticello	Monticello 2	16429.34767	0	16429.34767	0.0005	0.0057	0.0008	#NUM!	0.0543	0.0070	0.0005							
11	3	Monticello	Monticello 3	13856.60833	0	13856.60833	0.0004	0.0048	0.0007	#NUM!	0.0458	0.0059	0.0004							
12	4	Sandow	Sandow 4	22289.21167	0	22289.21167	0.0015	0.0361	0.0050	#NUM!	0.0109	0.0239	0.0033							
13	171b	Tolk	Tolk 171b	10031.389	0	10031.389	0.0124	0.0038	0.0061	#NUM!	0.0011	0.0261	0.0036							
14	172b	Tolk	Tolk 172b	11033.65033	0	11033.65033	0.0136	0.0042	0.0067	#NUM!	0.0012	0.0287	0.0039							
15	5	WA Parish	WA Parish 5	14157.28967	0	14157.28967	0.0005	0.0158	0.0030	#NUM!	0.0128	0.0071	0.0021							
16	6	WA Parish	WA Parish 6	15306.79967	0	15306.79967	0.0005	0.0171	0.0032	#NUM!	0.0138	0.0076	0.0023							
17	7	WA Parish	WA Parish 7	12334.96967	0	12334.96967	0.0004	0.0138	0.0026	#NUM!	0.0111	0.0062	0.0018							
18	8	WA Parish	WA Parish 8	2585.883333	0	2585.883333	0.0001	0.0029	0.0005	#NUM!	0.0023	0.0013	0.0004							
19	1	Welsh	Welsh 1	8083.911	0	8083.911	0.0003	0.0026	0.0004	#NUM!	0.0320	0.0036	0.0002							
20	2	Welsh	Welsh 2	8255.512667	0	8255.512667	0.0003	0.0027	0.0004	#NUM!	0.0326	0.0037	0.0002							
21	3	Welsh	Welsh 3	8608.802	0	8608.802	0.0003	0.0028	0.0005	#NUM!	0.0340	0.0038	0.0002							
327253.2933							0.03648191	0.260368	0.046927	#NUM!	0.739286	0.267861	0.031531							

## change in dv at 20%B NC

				4	5	6	7	8	9	10			
No.	Unit #	Facility		Baseline emissions	controlled emiss	tons reduced	BAND	BIBE	BOAP	BRET	CACR	CAVE	GICL
1		1 Big Brown	Big Brown 1	30667.22033	0	30667.22033	0.0030	0.1153	0.0086	0.0289	0.2551	0.1358	0.0062
2		2 Big Brown	Big Brown 2	30814.37367	0	30814.37367	0.0030	0.1158	0.0087	0.0291	0.2563	0.1365	0.0062
3		1 Coletto Creek	Coletto Creek 1	16059.31067	0	16059.31067	0.0029	0.1797	0.0135	0.0048	0.0083	0.0583	0.0130
4	lim 1	Limestone	Limestone lim 1	10912.50933	0	10912.50933	0.0013	0.0535	0.0042	0.0060	0.1258	0.0606	0.0032
5	lim 2	Limestone	Limestone lim 2	11946.36067	0	11946.36067	0.0015	0.0585	0.0046	0.0065	0.1376	0.0664	0.0035
6		1 Martin Lake	Martin Lake 1	24494.92533	0	24494.92533	0.0015	0.0444	0.0040	0.0451	0.7189	0.0621	0.0033
7		2 Martin Lake	Martin Lake 2	21580.41733	0	21580.41733	0.0013	0.0392	0.0036	0.0398	0.6361	0.0547	0.0029
8		3 Martin Lake	Martin Lake 3	19940.02	0	19940.02	0.0012	0.0362	0.0033	0.0368	0.5891	0.0506	0.0027
9		1 Monticello	Monticello 1	17864.781	0	17864.781	0.0016	0.0283	0.0026	0.0322	0.3795	0.0356	0.0018
10		2 Monticello	Monticello 2	16429.34767	0	16429.34767	0.0015	0.0260	0.0024	0.0296	0.3496	0.0327	0.0017
11		3 Monticello	Monticello 3	13856.60833	0	13856.60833	0.0012	0.0220	0.0020	0.0250	0.2956	0.0276	0.0014
12		4 Sandow	Sandow 4	22289.21167	0	22289.21167	0.0045	0.1629	0.0155	0.0111	0.0710	0.1103	0.0113
13	171b	Tolk	Tolk 171b	10031.389	0	10031.389	0.0367	0.0174	0.0191	0.0060	0.0073	0.1206	0.0123
14	172b	Tolk	Tolk 172b	11033.65033	0	11033.65033	0.0404	0.0192	0.0210	0.0066	0.0081	0.1326	0.0135

0.0004	0.0186	0.0070	0.0045	0.0013	0.0000	0.0136	0.0016	0.0226	0.0116	0.0013	0.0964	0.1363
0.0004	0.0201	0.0076	0.0048	0.0014	0.0000	0.0148	0.0017	0.0244	0.0125	0.0014	0.1041	0.1473
0.0003	0.0162	0.0061	0.0039	0.0011	0.0000	0.0119	0.0014	0.0197	0.0101	0.0011	0.0840	0.1188
0.0001	0.0034	0.0013	0.0008	0.0002	0.0000	0.0025	0.0003	0.0041	0.0021	0.0002	0.0177	0.0249
0.0001	0.0095	0.0364	0.0029	0.0004	0.0003	0.0097	0.0004	0.0243	0.0057	0.0004	0.0924	0.1993
0.0001	0.0097	0.0372	0.0029	0.0004	0.0003	0.0099	0.0004	0.0248	0.0058	0.0004	0.0944	0.2035
0.0001	0.0101	0.0387	0.0031	0.0004	0.0003	0.0103	0.0004	0.0259	0.0061	0.0004	0.0984	0.2122
0.030119	0.704573	0.817619	0.09735	0.042433	0.019871	0.562298	0.050825	0.686683	0.352026	0.042433	3.240455	

11	12	13	14	15	16	17	18	19	20	21	22	
GRSA	GUMO	HEGL	MING	PECO	ROMO	SACR	SAPE	UPBU	WHIT	WHPE	WIMO	all but WIMO and TX
0.0004	0.0295	0.0210	#NUM!	0.0012	0.0005	0.0153	0.0017	0.0152	0.0141	0.0012	0.0874	#NUM!
0.0004	0.0296	0.0211	#NUM!	0.0012	0.0005	0.0154	0.0017	0.0152	0.0142	0.0012	0.0879	#NUM!
0.0004	0.0126	0.0013	#NUM!	0.0019	0.0003	0.0108	0.0022	0.0035	0.0095	0.0019	0.0406	#NUM!
0.0002	0.0131	0.0058	#NUM!	0.0003	0.0002	0.0062	0.0006	0.0067	0.0056	0.0003	0.0337	#NUM!
0.0002	0.0143	0.0063	#NUM!	0.0004	0.0002	0.0068	0.0007	0.0074	0.0062	0.0004	0.0369	#NUM!
0.0002	0.0134	0.0273	#NUM!	0.0006	0.0002	0.0065	0.0008	0.0300	0.0071	0.0006	0.0535	#NUM!
0.0001	0.0118	0.0241	#NUM!	0.0005	0.0002	0.0057	0.0007	0.0264	0.0063	0.0005	0.0471	#NUM!
0.0001	0.0109	0.0222	#NUM!	0.0005	0.0002	0.0053	0.0007	0.0244	0.0058	0.0005	0.0435	#NUM!
0.0001	0.0077	0.0253	#NUM!	0.0005	0.0003	0.0074	0.0005	0.0142	0.0067	0.0005	0.0509	#NUM!
0.0001	0.0070	0.0233	#NUM!	0.0005	0.0003	0.0068	0.0005	0.0131	0.0062	0.0005	0.0468	#NUM!
0.0001	0.0059	0.0197	#NUM!	0.0004	0.0002	0.0057	0.0004	0.0110	0.0052	0.0004	0.0395	#NUM!
0.0002	0.0239	0.0027	#NUM!	0.0021	0.0007	0.0142	0.0030	0.0101	0.0175	0.0021	0.0768	#NUM!
0.0065	0.0261	0.0015	#NUM!	0.0068	0.0032	0.0331	0.0071	0.0004	0.0250	0.0068	0.0068	#NUM!
0.0071	0.0287	0.0017	#NUM!	0.0075	0.0035	0.0364	0.0078	0.0004	0.0275	0.0075	0.0075	#NUM!
0.0002	0.0071	0.0021	#NUM!	0.0008	0.0000	0.0049	0.0010	0.0074	0.0061	0.0008	0.0237	#NUM!
0.0002	0.0076	0.0022	#NUM!	0.0009	0.0000	0.0053	0.0011	0.0080	0.0066	0.0009	0.0256	#NUM!
0.0002	0.0062	0.0018	#NUM!	0.0007	0.0000	0.0042	0.0009	0.0065	0.0053	0.0007	0.0207	#NUM!
0.0000	0.0013	0.0004	#NUM!	0.0001	0.0000	0.0009	0.0002	0.0014	0.0011	0.0001	0.0043	#NUM!
0.0000	0.0036	0.0108	#NUM!	0.0002	0.0001	0.0035	0.0002	0.0080	0.0030	0.0002	0.0227	#NUM!
0.0000	0.0037	0.0110	#NUM!	0.0002	0.0002	0.0035	0.0002	0.0082	0.0031	0.0002	0.0232	#NUM!
0.0000	0.0038	0.0115	#NUM!	0.0003	0.0002	0.0037	0.0003	0.0085	0.0032	0.0003	0.0242	#NUM!
0.016695	0.267861	0.242951	#NUM!	0.027702	0.010869	0.201459	0.032509	0.226032	0.185336	0.027702	0.803472	

11	12	13	14	15	16	17	18	19	20	21	22	
GRSA	GUMO	HEGL	MING	PECO	ROMO	SACR	SAPE	UPBU	WHIT	WHPE	WIMO	all but WIMO and TX
0.0011	0.1358	0.1362	0.0181	0.0035	0.0018	0.0683	0.0050	0.0963	0.0495	0.0035	0.5436	0.8211
0.0011	0.1365	0.1368	0.0182	0.0035	0.0019	0.0686	0.0050	0.0968	0.0498	0.0035	0.5461	0.8250
0.0013	0.0583	0.0085	0.0037	0.0055	0.0010	0.0481	0.0066	0.0221	0.0334	0.0055	0.2567	0.2364
0.0005	0.0606	0.0377	0.0067	0.0010	0.0007	0.0279	0.0019	0.0429	0.0198	0.0010	0.2134	0.3413
0.0006	0.0664	0.0412	0.0073	0.0011	0.0008	0.0305	0.0021	0.0470	0.0217	0.0011	0.2334	0.3735
0.0005	0.0621	0.1770	0.0221	0.0018	0.0008	0.0288	0.0025	0.1897	0.0250	0.0018	0.3366	1.2851
0.0004	0.0547	0.1561	0.0195	0.0016	0.0007	0.0254	0.0022	0.1673	0.0220	0.0016	0.2971	1.1352
0.0004	0.0506	0.1443	0.0180	0.0015	0.0007	0.0235	0.0020	0.1547	0.0204	0.0015	0.2749	1.0505
0.0004	0.0356	0.1644	0.0159	0.0016	0.0010	0.0328	0.0016	0.0904	0.0235	0.0016	0.3207	0.7867
0.0004	0.0327	0.1513	0.0146	0.0015	0.0009	0.0302	0.0015	0.0832	0.0216	0.0015	0.2953	0.7242
0.0003	0.0276	0.1277	0.0124	0.0013	0.0008	0.0255	0.0013	0.0702	0.0182	0.0013	0.2496	0.6118
0.0005	0.1103	0.0175	0.0044	0.0061	0.0024	0.0632	0.0089	0.0640	0.0614	0.0061	0.4790	0.4584
0.0200	0.1206	0.0099	0.0017	0.0203	0.0116	0.1468	0.0212	0.0025	0.0876	0.0203	0.0438	0.5438
0.0220	0.1326	0.0109	0.0018	0.0223	0.0127	0.1614	0.0233	0.0028	0.0963	0.0223	0.0482	0.5978



no\_control

15	5	WA Parish	WA Parish 5	14157.28967	0	14157.28967	0.0014	0.0719	0.0093	0.0060	0.0835	0.0328	0.0073	
16	6	WA Parish	WA Parish 6	15306.79967	0	15306.79967	0.0015	0.0777	0.0100	0.0065	0.0903	0.0354	0.0079	
17	7	WA Parish	WA Parish 7	12334.96967	0	12334.96967	0.0012	0.0626	0.0081	0.0053	0.0728	0.0286	0.0063	
18	8	WA Parish	WA Parish 8	2585.883333	0	2585.883333	0.0003	0.0132	0.0017	0.0011	0.0153	0.0060	0.0013	
19	1	Welsh	Welsh 1	8083.911	0	8083.911	0.0008	0.0120	0.0014	0.0148	0.2074	0.0167	0.0008	
20	2	Welsh	Welsh 2	8255.512667	0	8255.512667	0.0008	0.0122	0.0014	0.0151	0.2118	0.0171	0.0008	
21	3	Welsh	Welsh 3	8608.802	0	8608.802	0.0008	0.0128	0.0014	0.0157	0.2207	0.0178	0.0008	
							327253.2933	0.10844764	1.18073	0.146528	0.372105	4.74018	1.238836	0.108404

baseline  
Average  
2009-  
2013  
3yr  
average  
2009-  
2013  
(eliminate  
max and  
min)  
Max 2009-  
2013  
2018

1  
  
  
  
  
  
  
  
  
  
2  
  
3  
4

no\_control

0.0006	0.0328	0.0136	0.0098	0.0024	0.0000	0.0218	0.0030	0.0472	0.0214	0.0024	0.1509	0.2627
0.0007	0.0354	0.0147	0.0106	0.0026	0.0000	0.0236	0.0033	0.0510	0.0232	0.0026	0.1630	0.2840
0.0005	0.0286	0.0118	0.0086	0.0021	0.0000	0.0190	0.0026	0.0412	0.0187	0.0021	0.1316	0.2289
0.0001	0.0060	0.0025	0.0018	0.0004	0.0000	0.0040	0.0006	0.0086	0.0039	0.0004	0.0277	0.0481
0.0001	0.0167	0.0704	0.0064	0.0007	0.0005	0.0155	0.0007	0.0509	0.0106	0.0007	0.1447	0.3983
0.0001	0.0171	0.0719	0.0065	0.0007	0.0006	0.0158	0.0007	0.0519	0.0108	0.0007	0.1478	0.4067
0.0001	0.0178	0.0749	0.0068	0.0008	0.0006	0.0165	0.0008	0.0542	0.0113	0.0008	0.1540	0.4240
0.051805	1.238836	1.579346	0.214721	0.08246	0.039511	0.897105	0.096763	1.434864	0.650066	0.08246	5.05821	

## **Exhibit B**

## Read Me

This spreadsheet reproduces the Texas portion of the calculations from the CSPAR BART sensitivity memo from Brian Timin to Docket ID No. EPA-HQ-OAR-2011-0729: Regional Haze: Revisions to Provisions Governing Alternatives to Source-Specific Best Available Retrofit Technology (BART) Determinations, Limited SIP Disapprovals, and Federal Implementation Plans, dated 5/29/12. It applies the corrections from the above referenced memo to the projected visibility improvement results for the 2nd prong test summarized in Table 3-5 of the Document, "Technical Support Document for Demonstration of the Transport Rule as a BART Alternative," December 2011. It demonstrates that for Texas Class I areas and some of the Class I Areas in adjacent states, implementation of BART would have resulted in more visibility improvement than CSAPR.

The table below replicates Table 2 from the 5/29/12 CSPAR BART sensitivity memo from Brian Timin, with the addition of the calculation of the adjustment factors for Texas and Georgia discussed on the top of page 5 of that document. Note that EPA calculates a factor of 0.48 for Georgia, which is a conservative rounding up of the factor calculated here.

State	2014 Base Case SO2 Emissions [tons]	2014 TR + BART-elsewhere SO2 Emissions (estimate from IPM used in air quality modeling) [tons]	SO2 Emissions Decrease from TR (as modeled) [tons]	2014 Budget Increase [tons]	SO2 Emissions Decrease from TR with Increased Budget [tons]	EPA's Resulting Emission Factor
Texas	453,332	266,627	-186,705	50,157	-136,548	0.731
Georgia	170,300	93,600	-76,700	40,334	-36,366	0.474
Total	623,632	360,227	-263,405	90,491	-172,914	

The table below is reproduced from Table 3 of the 5/29/12 CSPAR BART sensitivity memo from Brian Timin. It includes the Class I areas most affected by Texas emissions and the modeled visibility improvement from the Transport Rule + BART-elsewhere case (in deciviews). The 0.73 proportionality factor was calculated in the Brian Timin memo to correct for the increase of 50,157 tpy SO2 that was

Class I Area Name	State	TR + BART-elsewhere 20% Best Days (change in dv)	TR + BART-elsewhere 20% Best Days Proportionally Reduced by 0.73 (change in dv)	TR + BART-elsewhere 20% Worst Days (change in dv)	TR + BART-elsewhere 20% Worst Days Proportionally Reduced by 0.73 (change in dv)
Big Bend NP	TX	-0.2	-0.15	-1.1	-0.80
Caney Creek Wilderness	AR	-0.4	-0.29	-3.2	-2.34
Carlsbad Caverns NP	TX	-0.1	-0.07	-0.9	-0.66
Guadalupe Mountains NP	TX	-0.1	-0.07	-0.9	-0.66
Hercules-Glades Wilderness	MO	-0.6	-0.44	-2.5	-1.83
Salt Creek	NM	-0.1	-0.07	-0.7	-0.51

Change to TX BtB-50k SO2 Addition-revised

Upper Buffalo Wilderness	AR	-0.5	-0.37	-2.5	-1.83
White Mountain Wilderness	NM	-0.1	-0.07	-0.6	-0.44
Wichita Mountains	OK	-0.2	-0.15	-1.6	-1.17

In the above and below, improvements in visibility are represented by negative numbers, as this was used in the original analysis. Note that the reduction in TX emissions of 27% due to the increase in TX's SO2 budget of 50,157 tpy does not affect the "no degradation" test because all the modified visibility changes are still negative (some improvement).

Class I Areas (IMPROVE Site)	State	2014 Base Case Visibility 20% Best Days (dv)	2014 Base Case Visibility 20% Worst Days (dv)	TR + BART- elsewhere 20% Best Days (change in dv)	TR + BART- elsewhere 20% Best days Proportionally Reduced by 0.73 (change in dv)	TR + BART- elsewhere 20% Worst Days (change in dv)	TR + BART- elsewhere 20% Worst days Proportionally Reduced by 0.73 (change in dv)	BART - 2014 Base Case 20% Best Days (change in dv)	BART - 2014 Base Case 20% Worst Days (change in dv)
Acadia NP	ME	8.0	20.1	0.0		-1.1		0.0	-0.8
Badlands NP	SD	6.3	16.0	-0.1		-0.6		-0.1	-0.7
Bandelier NM	NM	4.2	11.1	-0.1		-0.3		-0.1	-0.4
Big Bend NP	TX	5.4	16.3	-0.2	-0.15	-1.1	-0.80	-0.2	-1.0
Black Canyon of the Gunnison	CO	2.3	9.5	-0.1		-0.1		-0.1	-0.1
Bosque del Apache	NM	5.6	13.0	-0.1		-0.6		-0.1	-0.6
Boundary Waters Canoe Area	MN	5.8	18.8	-0.1		-1.2		-0.1	-1.0
Brigantine	NJ	13.2	25.4	-0.4		-2.5		-0.2	-1.6
Caney Creek Wilderness	AR	11.3	24.4	-0.4	-0.29	-3.2	-2.34	-0.6	-2.2
Carlsbad Caverns NP	TX	5.2	15.5	-0.1	-0.07	-0.9	-0.66	-0.1	-0.8
Cohutta Wilderness	GA	12.9	26.6	-0.8		-3.8		-0.5	-2.3
Dolly Sods Wilderness	WV	10.3	27.1	-1.1		-5.7		-0.8	-3.2
Eagles Nest Wilderness	CO	0.4	8.3	0.0		-0.1		0.0	-0.1
Everglades NP	FL	11.5	20.4	-0.3		-1.0		-0.3	-0.7
Flat Tops Wilderness	CO	0.4	8.3	0.0		-0.1		0.0	-0.1
Great Gulf Wilderness	NH	6.7	19.2	-0.1		-1.8		-0.1	-1.3
Great Sand Dunes NM	CO	3.5	11.3	-0.1		-0.2		-0.1	-0.2
Great Smoky Mountains NP	TN	12.2	27.0	-0.8		-3.7		-0.7	-2.0
Guadalupe Mountains NP	TX	5.2	15.5	-0.1	-0.07	-0.9	-0.66	-0.1	-0.8
Hercules-Glades Wilderness	MO	12.2	25.2	-0.6	-0.44	-2.5	-1.83	-0.8	-1.7
Isle Royale NP	MI	6.4	19.9	-0.1		-1.0		-0.2	-0.9
James River Face Wilderness	VA	12.9	25.8	-0.9		-4.2		-0.5	-2.1
Joyce-Kilmer-Slickrock Wildern	TN	12.2	27.0	-0.8		-3.7		-0.7	-2.0

Change to TX BtB-50k SO2 Addition-revised

La Garita Wilderness	CO	2.3	9.5	-0.1		-0.1		-0.1	-0.1
Linville Gorge Wilderness	NC	10.3	26.0	-0.7		-4.3		-0.5	-2.3
Lostwood	ND	7.9	18.8	-0.1		-0.5		-0.1	-0.5
Lye Brook Wilderness	VT	5.5	20.7	-0.1		-2.6		-0.1	-1.7
Maroon Bells-Snowmass Wilde	CO	0.4	8.3	0.0		-0.1		0.0	-0.1
Mammoth Cave NP	KY	15.3	29.5	-1.2		-5.1		-0.9	-2.8
Medicine Lake	MT	6.5	17.7	0.0		-0.3		0.0	-0.3
Mesa Verde NP	CO	3.2	11.4	-0.1		-0.3		-0.1	-0.3
Moosehorn	ME	8.4	19.0	0.0		-1.0		0.0	-0.8
Mount Zirkel Wilderness	CO	1.0	9.2	0.0		-0.1		0.0	-0.1
North Absaroka Wilderness	WY	1.5	11.1	0.0		0.0		0.0	0.0
Okefenokee	GA	13.9	24.1	-0.9		-2.5		-0.7	-1.7
Otter Creek Wilderness	WV	10.3	27.1	-1.1		-5.7		-0.8	-3.2
Pecos Wilderness	NM	1.0	9.0	-0.1		-0.2		-0.1	-0.2
Presidential Range-Dry River W	NH	6.7	19.2	-0.1		-1.8		-0.1	-1.3
Rawah Wilderness	CO	1.0	9.2	0.0		-0.1		0.0	-0.1
Roosevelt Campobello Internat	ME	8.4	19.0	0.0		-1.0		0.0	-0.8
Cape Romain	SC	13.6	24.0	-0.7		-2.9		-0.4	-1.9
Rocky Mountain NP	CO	2.0	12.2	0.0		-0.1		0.0	-0.1
Salt Creek	NM	7.3	17.1	-0.1	-0.07	-0.7	-0.51	-0.2	-0.7
San Pedro Parks Wilderness	NM	1.2	9.9	-0.2		-0.3		-0.2	-0.4
Seney	MI	6.9	23.3	-0.1		-1.6		0.0	-1.5
Shenandoah NP	VA	9.0	26.2	-0.8		-5.0		-0.6	-3.0
Shining Rock Wilderness	NC	6.3	24.8	-0.7		-3.8		-0.5	-2.1
Sipsey Wilderness	AL	14.5	26.5	-0.9		-3.7		-0.9	-2.1
Theodore Roosevelt NP	ND	6.8	17.0	0.0		-0.3		0.0	-0.4
UL Bend	MT	4.2	15.2	0.0		-0.1		0.0	-0.1
Upper Buffalo Wilderness	AR	11.3	24.7	-0.5	-0.37	-2.5	-1.83	-0.6	-1.4
Voyageurs NP	MN	6.6	18.4	-0.1		-1.0		-0.1	-0.8
Washakie Wilderness	WY	1.5	11.1	0.0		0.0		0.0	0.0
West Elk Wilderness	CO	0.4	8.3	0.0		-0.1		0.0	-0.1
Weminuche Wilderness	CO	2.3	9.5	-0.1		-0.1		-0.1	-0.1
White Mountain Wilderness	NM	3.1	12.3	-0.1	-0.07	-0.6	-0.44	-0.2	-0.5
Wheeler Peak Wilderness	NM	1.0	9.0	-0.1		-0.2		-0.1	-0.2
Wind Cave NP	SD	4.6	15.1	0.0		-0.3		-0.1	-0.4
Wichita Mountains	OK	9.1	21.7	-0.2	-0.15	-1.6	-1.17	-0.2	-1.2
Wolf Island	GA	13.9	24.1	-0.9		-2.5		-0.7	-1.7
Eastern Class I Areas Average (60 Areas)				-0.3		-1.6		-0.2	-1.0

The above information is taken from Table 3-5 of the Document, "Technical Support Document for Demonstration of the Transport Rule as a BART Alternative," December 2011. As can be seen from a comparison to the first table, it also includes BART base case modeling results. In above, only Class I Areas in TX or those in surrounding states EPA identified in the Brian Timin memo as being impacted by TX's SO2 emissions were examined.

Class I Area Name	State	20 % Best Days Visibility Improvement (dv)				20 % Worst Days Visibility Improvement (dv)			
		TR + BART-elsewhere	TR + BART-elsewhere after TX Adjustment	BART - 2014 Base Case	Better Visibility under BART before or after TX Adjustment?	TR + BART-elsewhere	TR + BART-elsewhere after TX Adjustment	BART - 2014 Base Case	Better Visibility under BART before or after TX Adjustment?
Big Bend NP	TX	0.2	0.15	0.2	Y - After	1.1	0.80	1.0	Y - After
Caney Creek Wilderness	AR	0.4	0.29	0.6	Y - Before	3.2	2.34	2.2	N
Carlsbad Caverns NP	TX	0.1	0.07	0.1	Y - After	0.9	0.66	0.8	Y - After
Guadalupe Mountains NP	TX	0.1	0.07	0.1	Y - After	0.9	0.66	0.8	Y - After
Hercules-Glades Wilderness	MO	0.6	0.44	0.8	Y - Before	2.5	1.83	1.7	N
Salt Creek	NM	0.1	0.07	0.2	Y - Before	0.7	0.51	0.7	Y - After
Upper Buffalo Wilderness	AR	0.5	0.37	0.6	Y - Before	2.5	1.83	1.4	N
White Mountain Wilderness	NM	0.1	0.07	0.2	Y - Before	0.6	0.44	0.5	Y - After
Wichita Mountains	OK	0.2	0.15	0.2	Y - After	1.6	1.17	1.2	Y - After
Totals		2.3	1.7	3.0		14.0	10.2	10.3	

The above table summarizes the analysis for the Class I Areas most affected by Texas emissions. For the sake of clarity, changes in visibility from baselines which were previously represented as negative numbers, have been changed to positive numbers to more intuitively represent visibility improvement. As can be seen, in every Texas Class I Area and in every adjacent Class I Area EPA identified was impacted by Texas emissions, better visibility improvement resulted in the 20% best days and/or the 20% worst days from source-by-source BART than through CSAPR.



# **Exhibit C**

# Welsh Power Plant

## Retrofit of Units 1 and 3



*A unit of American Electric Power*



### Quick Facts: About Welsh Power Plant

- **Location:** Cason, Texas
- **Stack height:** 325 feet
- **Average annual coal use:** 6.5 million tons
- **Coal yard storage capacity:** 1.3 million tons
- **Average daily coal use:** 17,500 tons
- **Annual payroll:** \$9 million
- **Certified Tree Farm** (first one for AEP in Texas)

### How We Generate Electricity

Coal arrives by rail and is stored in the plant's coal yard. Conveyor belts carry the coal from the yard into the plant where pulverizers grind the coal into a fine, talcum powder-like consistency. The powdered coal is injected into the boilers where it burns at high temperatures, turning water that circulates in the boilers into steam.

The steam is then directed into the turbines, where it turns blades (much like wind turning a windmill). The spinning turbine drives a generator that produces electricity.

Because electricity cannot be stored, it is generated the instant a customer needs it. The generators produce electricity at 18,000 volts. Transformers outside the plant step up the voltage to 345,000 volts so that it can be transmitted efficiently to customers' homes and businesses.

**Welsh Plant's** three generating units provide total capacity of 1,584 megawatts (MW). Units 1, 2 and 3 became operational in 1977, 1980 and 1982 respectively, each with capacity of 528 MW.

Welsh Plant is a base load, coal-fueled, power plant located southeast of Mt. Pleasant in Titus County, Texas. The three units use sub-bituminous coal mined from the Powder River Basin in Wyoming and shipped to East Texas via rail.

The Welsh plant is 28 percent of SWEPCO's capacity, with a net value of \$247 million for all three units. SWEPCO made a commitment in 2011 to retire Unit 2 by April 2016.

SWEPCO has begun a retrofit of Units 1 and 3 at a total investment cost of \$411 million to meet the environmental compliance deadline of April 2015 (extended to April, 2016). The unit retrofits are the highest value for SWEPCO's customers.

### Retrofit Decision and Local Community Impact

- 133 SWEPCO employees affected
- Additional employment effect to local contractors
- \$4.126 million in local taxes, including \$2.6 million for Daingerfield-Lone Star ISD and \$235,000 to Northeast Texas Community College
- \$278,000 in Texas state taxes

### Southwestern Electric Power Company and American Electric Power

Southwestern Electric Power Company (SWEPCO), is an operating unit of American Electric Power. SWEPCO serves 524,000 customers in Louisiana, Texas and Arkansas. SWEPCO's headquarters are in Shreveport, La. American Electric Power is one of the largest electric utilities in the United States, delivering electricity to more than 5 million customers in 11 states. AEP ranks among the nation's largest generators of electricity, owning nearly 36,000 megawatts of generating capacity in the U.S. AEP also owns the nation's largest electricity transmission system, a nearly 39,000-mile network that includes more 765-kilovolt extra-high voltage transmission lines than all other U.S. transmission systems combined. AEP's headquarters are in Columbus, Ohio.

EXC0001

# Protecting the Environment

AEP operates Welsh Plant under its Environmental Leadership Principles, which state in part: “We will actively seek to prevent pollution by minimizing our emissions to the environment. We will pay particular attention to the protection of the surrounding environment at existing facilities, company-owned land and when planning new facilities.” Welsh Plant meets or exceeds the environmental standards set by state and federal regulations.

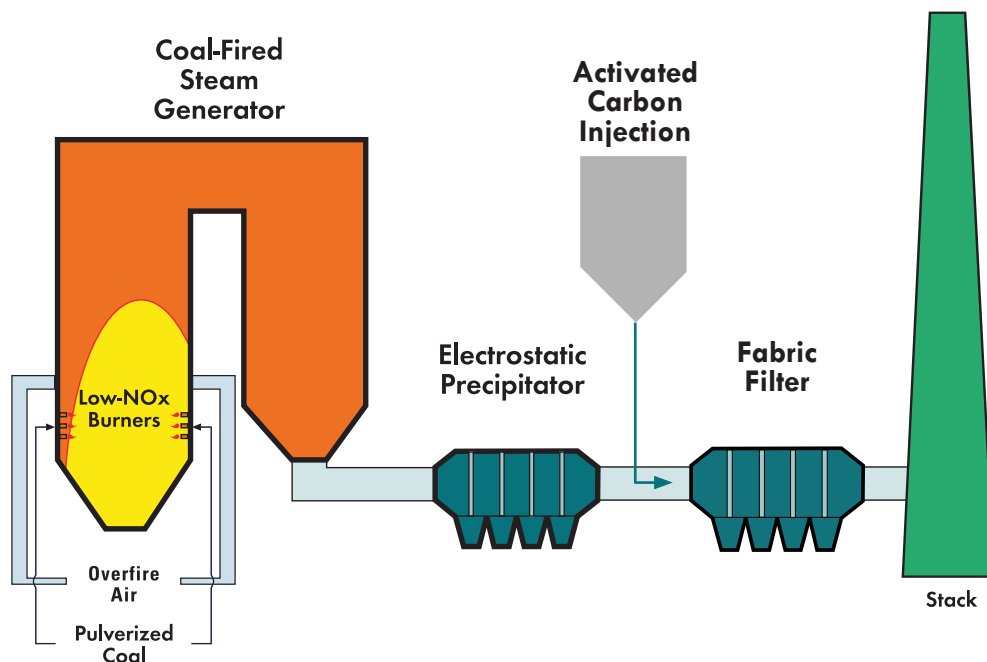
Welsh Plant employees take great pride in providing electricity while protecting air and water quality, recycling materials and maintaining an exemplary record of public and work safety.

- Low-NO<sub>x</sub> burners along with an overfire air system reduce nitrogen oxide (NO<sub>x</sub>) emissions by up to 60 percent. Low NO<sub>x</sub> burners control the way coal is burned to reduce the formation of NO<sub>x</sub>, a precursor to ozone, and an overfire air design injects air above the burning zone to enhance combustion. This infusion of air limits the formation of nitrogen dioxide, thereby reducing the formation of NO<sub>x</sub>.
- Electrostatic precipitators (ESP) remove more than 99 percent of all fly ash particles produced by coal combustion. In precipitators, fly ash from burning coal passes through electrically-charged plates, which pull the ash particles out

of the exhaust gas stream. The ash can be marketed for use in land reclamation, in concrete and lightweight aggregate and in the production of paints, plastics and other products to reduce the amount of product that is landfilled.

- Powdered Activated Carbon Injection (ACI) is utilized downstream of the ESP to reduce mercury emissions below newly enacted environmental standards. ACI works by adsorbing the mercury from the gas produced during coal combustion.
- A new Fabric Filter will be installed to capture the powdered activated carbon and the mercury it has removed from the process. The Fabric Filter, which contains thousands of fabric bags, works like an air filter on an automobile by allowing gases to pass through while capturing particulate matter such as powdered activated carbon and fly ash. The bags are periodically pulsed with compressed air to remove the captured material into hoppers below. The material is then transported to the plant landfill for disposal.
- Welsh Plant uses an automated continuous emission monitoring system (CEMS) to monitor stack gas emissions. This highly accurate system helps ensure compliance with clean air requirements for sulfur dioxide, NO<sub>x</sub> and carbon dioxide emissions and opacity.

## Welsh Power Plant Emission Control Equipment





# Grid operator notified: Deely coal plant operations to be indefinitely suspended in 2018

By [CPS Energy](#) on October 28, 2013



As part of its long range planning, CPS Energy on Friday notified the [Electric Reliability Council of Texas \(ERCOT\)](#) of its intent to suspend operations indefinitely at JT Deely Units 1 and 2, effective Dec. 31, 2018.

The company's Board of Trustees is expected to approve a resolution that formally confirms the decision at its Nov. 18 meeting.

The Deely units have supplied the Greater San Antonio community with 871 megawatts of reliable, affordable electricity since 1977. The written notification is the definitive step toward closing the plant that sits on Calaveras Lake in southeast Bexar County.

In 2011, CEO Doyle Beneby proposed retiring the Deely units 15 years ahead of schedule in order to avoid spending upwards of \$550 million in environmental retrofits that would have upgraded the units in advance of new regulatory emissions requirements.

In 2012, CPS Energy purchased the 800-MW Rio Nogales combined cycle natural gas plant to replace the energy supply of the older coal units. This measure, along with renewable resources, efficiency programs and conservation will reduce pollutants in the Greater San Antonio area at a level equivalent to removing 1.5 million cars from the road by 2020.

EXC0003

“The retirement of the Deely coal plants will mean cleaner air to breathe and fewer people with asthma,” said Karen Hadden, executive director of the [SEED Coalition](#), who worked with CPS Energy more than a decade ago to bring cleaner air to San Antonio. The closure “will especially improve the health of children, the elderly and those with breathing impairments.”

“We’re currently considering ways to repurpose the plant for other, less carbon-intense power production,” said Cris Eugster, executive vice president and chief generation and strategy officer. “We haven’t determined what that next-generation supply will be, and we won’t need it until 2020. But these are long-term plans and big decisions that take time.”

“We are glad CPS has taken this step to lock in their decision to retire Deely,” said Tom “Smitty” Smith, state director of [Public Citizen](#), which advocates for affordable, clean and sustainable energy. “It’s another way CPS has shown its leadership among utilities in Texas.”

#### RELATED STORIES:

[Sierra Club: Kudos to CPS Energy for emissions reductions](#)

[CPS Energy leading on greenhouse gas reductions](#)

[Ozone is rising in Bexar County, even as CPS Energy reduces emissions](#)

---

#### Share this:



---

Copyright © 2013, CPS Energy. All rights reserved.

u



## NEWS RELEASE

# Luminant Announces Decision to Retire Its Monticello Power Plant

### 3 Units in Northeast Texas Affected

**IRVING, Texas — Oct. 6, 2017** — Luminant, a subsidiary of Vistra Energy (NYSE: VST), today announced plans to retire its Monticello Power Plant in Titus County, Texas. In total, approximately 1,800 MW of power will be taken offline in January of 2018.

Curt Morgan, Vistra Energy's president and chief executive officer, said, "For more than 40 years, Monticello employees have generated reliable power for Texans, and we honor and recognize their service. But the market's unprecedented low power price environment has profoundly impacted its operating revenues and no longer supports continued investment."

Luminant estimates that approximately 200 employees will be impacted by Monticello's retirement. Eligible and affected employees will be offered severance benefits and outplacement assistance. The company will also assist employees who are interested in pursuing open positions within our fleet.

Mr. Morgan continued, "This was a difficult decision made after a year of careful analysis. We are sensitive to the consequences of our decision on employees and members of the local community, with whom we have worked closely for decades. Luminant will be coordinating with civic leadership to prepare for the impacts of the transition."

As part of the retirement process, today Luminant filed a notice with the Electric Reliability Council of Texas ("ERCOT"), which will trigger a reliability review. If ERCOT determines the units are not needed for reliability following this 60-day review, Luminant expects to stop plant operations on Jan. 4, 2018.

Luminant will take the necessary steps to responsibly decommission the facility in accordance with all federal and state regulations. In addition, we will continue the ongoing reclamation work at the plant's mines, which ceased active operations in the spring of 2016.

Vistra estimates it will record one-time charges of approximately \$20-25 million in the third quarter of 2017 related to the retirement, including employee-related severance costs and non-cash charges for materials inventory and the acceleration of Luminant's mining reclamation obligations.



**Media**

Allan Koenig

214-875-8004

[Media.Relations@vistraenergy.com](mailto:Media.Relations@vistraenergy.com)

**Analysts**

Molly Sorg

214-812-0046

[Investor@vistraenergy.com](mailto:Investor@vistraenergy.com)

**About Vistra Energy**

Vistra Energy is a premier Texas-based energy company focused on the competitive energy and power generation markets through operation as the largest retailer and generator of electricity in the growing Texas market. Our integrated portfolio of competitive businesses consists primarily of TXU Energy and Luminant. TXU Energy sells retail electricity and value-added services (primarily through our market-leading TXU Energy™ brand) to approximately 1.7 million residential and business customers in Texas. Luminant generates and sells electricity and related products from our diverse fleet of generation facilities totaling approximately 18,000 MW of generation in Texas, including 2,300 MW fueled by nuclear power, 8,000 MW fueled by coal, and 7,500 MW fueled by natural gas, and is a large purchaser of renewable power including wind and solar-generated electricity. The company is currently developing one of the largest solar facilities in Texas by capacity.

**Cautionary Note Regarding Forward-Looking Statements**

This press release includes forward-looking statements, which are subject to risks and uncertainties. All statements, other than statements of historical facts, are forward-looking statements. These statements are often, but not always, made through the use of words or phrases such as “may,” “should,” “could,” “predict,” “potential,” “believe,” “will likely result,” “expect,” “continue,” “will,” “anticipate,” “seek,” “estimate,” “intend,” “plan,” “project,” “forecast,” “goal,” “target,” “would” and “outlook,” or the negative variations of those words or other comparable words of a future or forward-looking nature. Readers are cautioned not to place undue reliance on forward-looking statements. Any such forward-looking statement involves uncertainties and is qualified in its entirety by reference to the discussion of risk factors under “Risk Factors” and the discussion under “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in the Form 10-Ks and Form 10-Qs filed by Vistra Energy Corp. and other important factors that could cause actual results to differ materially from those implied by such forward-looking statements.

Any forward-looking statement speaks only at the date on which it is made, and except as may be required by law, Vistra Energy undertakes no obligation to update any forward-looking statement to reflect events or circumstances after the date on which it is made or to reflect the occurrence of unanticipated events. New factors emerge from time to time, and it is not possible to predict all of them; nor can Vistra Energy assess the impact of each such factor or the extent to which any factor, or combination of factors, may cause results to differ materially from those contained in any forward-looking statement.



## NEWS RELEASE

# Luminant to Close Two Texas Power Plants

## Decision a Result of Challenging Plant and Market Economics

**IRVING, Texas — Oct. 13, 2017** — Luminant, a subsidiary of Vistra Energy (NYSE: VST), today announced that it will close two coal-fueled power plants in Central Texas: its two-unit Sandow Power Plant in Milam County and its two-unit Big Brown Power Plant in Freestone County. In total, approximately 2,300 MW of nameplate power will be taken offline in early 2018.

These two plants are economically challenged in the competitive ERCOT market. Sustained low wholesale power prices, an oversupplied renewable generation market, and low natural gas prices, along with other factors, have contributed to this decision.

Curt Morgan, Vistra Energy's president and chief executive officer, said, "This announcement is a difficult one to make. It is never easy to announce an action that has a significant impact on our people. Though the long-term economic viability of these plants has been in question for some time, our year-long analysis indicates this announcement is now necessary. These employees have kept both plants reliably powering Texas for decades, and we greatly appreciate their service."

### Sandow Site

Earlier this week, the company and Alcoa entered into a contract termination agreement pursuant to which the parties agreed to an early settlement of a long-standing power and mining agreement. In consideration for the early termination, Alcoa made a one-time payment to Luminant. The settlement follows a decrease in wholesale power prices in ERCOT and the prior closure of Alcoa's smelter operation next to Sandow. The contract has helped shield Sandow from significant exposure to the downturn in the wholesale power market; however, the standalone economics of the Sandow complex no longer support continued investment in the site in this low wholesale power price environment.

Also closing will be Three Oaks Mine, located primarily in Bastrop County, which supports this plant.

Luminant estimates that approximately 450 employees will be impacted by the Sandow plant and Three Oaks mine closure. Eligible and affected employees will be offered severance benefits and outplacement assistance.

As part of the closure process, today Luminant filed a 90-day notice of suspension of operations with ERCOT, which will trigger a 60-day reliability review. If ERCOT determines the Sandow units are not needed for reliability following this 60-day review, Luminant expects to cease plant operations on Jan. 11, 2018.

Luminant will take the necessary steps to responsibly decommission the facility in accordance with all federal and state regulations. In addition, ongoing reclamation work will continue at Three Oaks Mine.



### **Big Brown Site**

Over the last few years, the Big Brown team has made tremendous operational adjustments to remain viable given the challenging market conditions. However, despite these best efforts, the economics of operating Big Brown do not make it a sustainable option for our fleet. The company will explore a sales process for the site during the ERCOT notification period.

Turlington Mine, which supplies Big Brown, was already scheduled to wind down operations by the end of 2017. Reclamation work will continue there.

Luminant estimates that about 200 employees will be impacted by the Big Brown closure. Eligible and affected employees will be offered severance benefits and outplacement assistance.

As part of the closure process, today Luminant filed a 120-day notice of suspension of operations with ERCOT, which will trigger a 60-day reliability review. Luminant is extending the 90-day notice to 120 days to permit a more complete sales process and give ERCOT additional time to conduct their reliability analysis. If ERCOT determines the Big Brown units are not needed for reliability following the 60-day review, and if the site has not been sold, Luminant expects to cease operations on Feb. 12, 2018.

### **Financial Impact**

Vistra expects to record one-time charges of approximately \$70 to 90 million in the fourth quarter of 2017 related to the expected retirements, including employee-related severance costs and non-cash charges for writing off materials inventory and a contract intangible asset associated with Sandow 4. We expect to record additional one-time charges in the fourth quarter of 2017 related to changes in the timing and amounts of asset retirement obligations for mining and plant-related reclamation obligations at these facilities.

### **Media**

Allan Koenig  
214-875-8004

[Media.Relations@vistraenergy.com](mailto:Media.Relations@vistraenergy.com)

### **Analysts**

Molly Sorg  
214-812-0046

[Investor@vistraenergy.com](mailto:Investor@vistraenergy.com)

### **About Vistra Energy**

Vistra Energy is a premier Texas-based energy company focused on the competitive energy and power generation markets through operation as the largest retailer and generator of electricity in the growing Texas market. Our integrated portfolio of competitive businesses consists primarily of TXU Energy and Luminant. TXU Energy sells retail electricity and value-added services (primarily through our market-leading TXU Energy™ brand) to approximately 1.7 million residential and business customers in Texas. Luminant generates and sells electricity and related products from our diverse fleet of generation facilities totaling approximately 18,000 MW of generation in Texas, including 2,300 MW fueled by nuclear power, 8,000 MW fueled by coal, and 7,500 MW fueled by natural gas, and is a large purchaser of renewable power including wind and solar-generated electricity. The company is currently developing one of the largest solar facilities in Texas by capacity.

### **Cautionary Note Regarding Forward-Looking Statements**

This press release includes forward-looking statements, which are subject to risks and uncertainties. All statements, other than statements of historical facts, are forward-looking statements. These statements are often, but not always, made through the use of words or phrases such as “may,” “should,” “could,” “predict,” “potential,” “believe,” “will likely result,” “expect,” “continue,” “will,” “anticipate,” “seek,” “estimate,” “intend,” “plan,” “project,” “forecast,” “goal,” “target,” “would” and “outlook,” or the negative variations of those words or other comparable words of a future or forward-looking nature. Readers are cautioned not to place undue reliance on forward-looking statements. Any such forward-looking statement involves uncertainties and is qualified in its entirety by reference to the discussion of risk factors under “Risk Factors” and the discussion under “Management’s Discussion and Analysis of

Financial Condition and Results of Operations” in the Form 10-Ks and Form 10-Qs filed by Vistra Energy Corp. and other important factors that could cause actual results to differ materially from those implied by such forward-looking statements.

Any forward-looking statement speaks only at the date on which it is made, and except as may be required by law, Vistra Energy undertakes no obligation to update any forward-looking statement to reflect events or circumstances after the date on which it is made or to reflect the occurrence of unanticipated events. New factors emerge from time to time, and it is not possible to predict all of them; nor can Vistra Energy assess the impact of each such factor or the extent to which any factor, or combination of factors, may cause results to differ materially from those contained in any forward-looking statement.

## CERTIFICATE OF SERVICE

I hereby certify that on December 15, 2017, I filed National Parks Conservation Association, Sierra Club, and Environmental Defense Fund's *Petition for Reconsideration of Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan (Oct. 17, 2017); EPA-R06-OAR-2016-0611; FRL-9969-07-Region 6*, via email and Federal Express, to:

Administrator Scott Pruitt  
Office of the Administrator  
U.S. Environmental Protection Agency  
William Jefferson Clinton Building – Mail Code 1101A  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
Pruitt.Scott@epa.gov

Further, I certify that on December 15, 2017, I served a courtesy copy of the foregoing, via email, to:

Kevin Minoli  
Acting General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
William Jefferson Clinton Building  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
Minoli.Kevin@epa.gov

Lea Anderson  
Office of General Counsel  
U.S. Environmental Protection Agency  
William Jefferson Clinton Building  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
Anderson.Lea@epa.gov

Air & Radiation Docket  
A-and-R-Docket@epa.gov

December 15, 2017

/s/ Gabrielle Winick  
Gabrielle Winick

environmental effects with practical, appropriate, and legally permissible methods under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, the SIP is not approved to apply on any Indian reservation land or in any other area where the EPA or an Indian tribe has demonstrated that a tribe has jurisdiction. In those areas of Indian country, the proposed rule does not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

#### List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Carbon monoxide, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Volatile organic compounds.

**Authority:** 2 U.S.C. 7401 *et seq.*

Dated: August 8, 2018.

**Deborah Jordan,**

*Acting Regional Administrator, Region IX.*

[FR Doc. 2018–18408 Filed 8–24–18; 8:45 am]

**BILLING CODE 6560–50–P**

## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Parts 52 and 97

[EPA–R06–OAR–2016–0611; FRL–9982–50–Region 6]

#### Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan: Proposal of Best Available Retrofit Technology (BART) and Interstate Transport Provisions

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** On October 17, 2017, the EPA published a final rule partially approving the 2009 Texas Regional Haze State Implementation Plan (SIP) submission and promulgated a Federal Implementation Plan (FIP) for Texas to address certain outstanding Clean Air Act (CAA) regional haze requirements. Because the EPA believes that certain aspects of the final rule could benefit from additional public input, we are proposing to affirm our October 2017 SIP approval and FIP promulgation and to provide the public with an opportunity to comment on relevant aspects, as well as other specified related issues.

**DATES:** Comments must be received on or before October 26, 2018.

#### Public Hearing:

We are holding an information session, for the purpose of providing additional information and informal discussion for our proposal. We are also holding a public hearing to accept oral comments into the record:

**Date:** Wednesday, September 26, 2018

**Time:** Information Session: 1:30 p.m.–3:30 p.m.

**Public hearing:** 4:00 p.m.–8:00 p.m. (including a short break)

**Location:** Joe C. Thompson Conference Center (on the University of Texas (UT) Campus), Room 1.110, 2405 Robert Dedman Drive, Austin, Texas 78712.

For additional logistical information regarding the public hearing please see the **SUPPLEMENTARY INFORMATION** section of this action.

**ADDRESSES:** Submit your comments, identified by Docket No. EPA–R06–OAR–2016–0611, at <http://www.regulations.gov> or via email to [R6-TX-BART@epa.gov](mailto:R6-TX-BART@epa.gov). Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from *Regulations.gov*. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.* on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <http://www2.epa.gov/dockets/commenting-epa-dockets>.

**Docket:** The index to the docket for this action is available electronically at <http://www.regulations.gov> and in hard copy at the EPA Region 6, 1445 Ross Avenue, Suite 700, Dallas, Texas. While all documents in the docket are listed in the index, some information may be publicly available only at the hard copy location (*e.g.*, copyrighted material), and some may not be publicly available at either location (*e.g.*, CBI).

The Texas regional haze SIP is also available online at: [https://www.tceq.texas.gov/airquality/sip/bart/haze\\_sip.html](https://www.tceq.texas.gov/airquality/sip/bart/haze_sip.html).

It is also available for public inspection during official business hours, by appointment, at the Texas Commission on Environmental Quality, Office of Air Quality, 12124 Park 35 Circle, Austin, Texas 78753.

#### FOR FURTHER INFORMATION CONTACT:

Jennifer Huser, Air Planning Section (6MM–AA), Environmental Protection Agency, Region 6, 1445 Ross Avenue, Suite 700, Dallas, Texas 75202–2733, telephone 214–665–7347; email address [Huser.Jennifer@epa.gov](mailto:Huser.Jennifer@epa.gov).

#### SUPPLEMENTARY INFORMATION:

Throughout this document wherever “we,” “us,” or “our” is used, we mean the EPA.

Joe C. Thompson Conference Center parking is adjacent to the building in Lot 40, located at the intersection of East Dean Keeton Street and Red River Street. Additional parking is available at the Manor Garage, located at the intersection of Clyde Littlefield Drive and Robert Dedman Drive. If arranged in advance, the UT Parking Office will allow buses to park along Dedman Drive near the Manor Garage for a fee.

The public hearing will provide interested parties the opportunity to present information and opinions to us concerning our proposal. Interested parties may also submit written comments, as discussed in the proposal. Written statements and supporting information submitted during the comment period will be considered with the same weight as any oral comments and supporting information presented at the public hearing. We will not respond to comments during the public hearing. When we publish our final action, we will provide written responses to all significant oral and written comments received on our proposal. To provide opportunities for questions and discussion, we will hold an information session prior to the public hearing. During the information session, EPA staff will be available to informally answer questions on our proposed action. Any comments made to EPA staff during an information session must still be provided orally during the public hearing, or formally in writing within 30 days after completion of the hearings, in order to be considered in the record.

At the public hearing, the hearing officer may limit the time available for each commenter to address the proposal to three minutes or less if the hearing officer determines it to be appropriate. We will not be providing equipment for commenters to show overhead slides or make computerized slide presentations. Any person may provide written or oral

comments and data pertaining to our proposal at the public hearing. Verbatim English—language transcripts of the hearing and written statements will be included in the rulemaking docket.

## Table of Contents

- I. Background
  - A. Overview of the Purpose of Today's Action
  - B. Regional Haze
  - C. Interstate Transport of Pollutants That Affect Visibility
  - D. Previous Actions Related to Texas Regional Haze
- II. Summary of This Proposed Action
  - A. Regional Haze
    - 1. SO<sub>2</sub> BART
    - 2. PM BART
  - B. Interstate Transport of Pollutants that Affect Visibility
- III. PM BART
- IV. The SO<sub>2</sub> Trading Program and Its Implications for Interstate Visibility Transport and EGU BART
  - A. Background on the Concept of CSAPR As an Alternative to BART
  - B. Texas SO<sub>2</sub> Trading Program
    - 1. Identification of Sources Participating in the Trading Program
    - 2. Texas SO<sub>2</sub> Trading Program as a BART Alternative
  - C. Specific Texas SO<sub>2</sub> Trading Program Features
  - D. Recent Retirements
  - E. Interstate Visibility Transport
- V. Proposed Action
  - A. Regional Haze
  - B. Interstate Visibility Transport
- VI. Statutory and Executive Order Reviews

## I. Background

### A. Overview of the Purpose of Today's Action

The following overview demonstrates the lengthy and difficult path the regional haze program has taken in Texas. EPA maintains that States are in the best position to provide flexibility and protect the environment while maintaining a strong economic engine. As outlined in more detail below, the Texas 2009 Regional Haze SIP relied on the defunct Clean Air Interstate Rule (CAIR) to satisfy the Best Available Retrofit Technology (BART) requirements. The D.C. Circuit remanded CAIR to the EPA in 2009, prior to the state's submission. The CAIR requirements were replaced by the Cross-State Air Pollution Rule (CSAPR) in 2011. Because of legal challenges, CSAPR in its current form does not provide SO<sub>2</sub> emission reductions in Texas and, as such, cannot satisfy the BART requirements for SO<sub>2</sub> at electrical generating units (EGUs) in Texas. Nonetheless, Texas has not provided a replacement SIP submission to address BART for SO<sub>2</sub> at its EGUs. Because of court deadlines and without a Texas

SIP, EPA has been forced to adopt a Federal Implementation Plan (FIP) to address BART.

When EPA proposed a source-specific BART FIP in January 2017,<sup>1</sup> Texas, along with other commenters, suggested to EPA the concept of a trading program. In close cooperation with Texas, EPA developed an SO<sub>2</sub> trading program that we included in our October 2017 final rule<sup>2</sup> and adopted in time to meet our court-ordered deadline. Texas entered an agreement with EPA to provide a SIP-based trading program that would replace the FIP.<sup>3</sup> However, in the months since EPA promulgated the trading program FIP, Texas has not met its commitment to provide a SIP, leaving it without the benefits a State program could bring and leaving EPA little choice but to continue to implement a federal plan.

On December 15, 2017, EPA received a petition for reconsideration of the October 2017 rule requesting that the Administrator reconsider certain aspects of the FIP related to the intrastate trading program promulgated to address the SO<sub>2</sub> BART requirement for EGUs. As stated in our letter in response to that petition dated April 30, 2018, we believe certain specific aspects of the federal plan can benefit from further public comment. Therefore, in this action, we are soliciting comment on: (1) The issuance of a FIP establishing an intrastate trading program capping emissions of SO<sub>2</sub> from certain EGUs in Texas and our determination that this program meets the requirements for an alternative to BART for SO<sub>2</sub>; (2) our finding that the BART alternatives in the October 2017 rulemaking to address SO<sub>2</sub> and NO<sub>x</sub> BART at Texas' EGUs result in emission reductions adequate to satisfy the requirements of CAA section 110(a)(2)(D)(i)(II) with respect to visibility for a number of NAAQS issued between 1997 and 2010; and (3) our approval of Texas' SIP determination that no sources are subject to BART for PM<sub>2.5</sub>. We are also soliciting comment on the specific issues of whether recent shutdowns of sources included in the trading program and the merger of two owners of affected EGUs should impact the allocation methodology for certain SO<sub>2</sub> allowances. EPA will consider these comments in the context of our proposal to affirm the SO<sub>2</sub> trading program FIP. We believe that this action, which provides the public an opportunity to provide input on the

issues raised in the December 15, 2017 petition for reconsideration of the October 2017 final rule, resolves the basis for that petition.

While soliciting comment on the above three proposed actions, EPA also invites comment on additional issues that could inform our decision making with regard to the SO<sub>2</sub> BART obligations for Texas. First, we seek input on whether SO<sub>2</sub> BART would be better addressed through a source-by-source approach (source-specific BART), the October 2017 SO<sub>2</sub> trading program, or some other appropriate BART alternative. Second, EPA requests comment on whether a SIP-based program would serve Texas better than a FIP. Third, we request public input on whether and how the SO<sub>2</sub> trading program finalized in the October 2017 final rule addresses the long-term strategy and reasonable progress requirements for Texas.

We note that, should we decide to act pursuant to any comments we receive on these additional policy questions, we may initiate a new rulemaking process with a new proposed rule.

### B. Regional Haze

Regional haze is visibility impairment that is produced by a multitude of sources and activities that are located across a broad geographic area and emit PM<sub>2.5</sub> (e.g., sulfates, nitrates, organic carbon (OC), elemental carbon (EC), and soil dust), and its precursors (e.g., SO<sub>2</sub>, NO<sub>x</sub>, and, in some cases, ammonia (NH<sub>3</sub>) and volatile organic compounds (VOCs)). Fine particle precursors react in the atmosphere to form PM<sub>2.5</sub>, which impairs visibility by scattering and absorbing light. Visibility impairment reduces the clarity, color, and visible distance that can be seen. PM<sub>2.5</sub> can also cause serious health effects and mortality in humans and contributes to environmental effects, such as acid deposition and eutrophication.<sup>4</sup>

In Section 169A of the 1977 Amendments to the CAA, Congress created a program for protecting visibility in the nation's national parks and wilderness areas. This section of the CAA establishes as a national goal the prevention of any future, and the remedying of any existing, man-made impairment of visibility in 156 national parks and wilderness areas designated as mandatory Class I Federal areas. On December 2, 1980, EPA promulgated regulations to address visibility impairment in Class I areas that is

<sup>1</sup> 82 FR 912 (Jan. 4, 2017).

<sup>2</sup> 82 FR 48324 (Oct. 17, 2017).

<sup>3</sup> See Texas Regional Haze MOA with TCEQ dated August 14, 2017 at docket document number EPA-R06-OAR-2016-0611-0051.

<sup>4</sup> Additional information regarding the regulatory background of the CAA and regional haze requirements can be found in our January 2017 notice of proposed rulemaking for Texas Regional Haze. (82 FR 917, January 4, 2017).



“reasonably attributable” to a single source or small group of sources, *i.e.*, “reasonably attributable visibility impairment.” These regulations represented the first phase in addressing visibility impairment. EPA deferred action on regional haze that emanates from a variety of sources until monitoring, modeling, and scientific knowledge about the relationships between pollutants and visibility impairment were improved. Congress added section 169B to the CAA in 1990 to address regional haze issues, and EPA promulgated regulations addressing regional haze in 1999. The Regional Haze Rule revised the existing visibility regulations to add provisions addressing regional haze impairment and established a comprehensive visibility protection program for Class I areas.

Section 169A of the CAA directs states to evaluate the use of retrofit controls at certain larger, often uncontrolled, older stationary sources in order to address visibility impacts from these sources. Specifically, section 169A(b)(2)(A) of the CAA requires states to revise their SIPs to contain such measures as may be necessary to make reasonable progress toward the natural visibility goal by controlling emissions of pollutants that contribute to visibility impairment, including a requirement that certain categories of existing major stationary sources<sup>5</sup> built between 1962 and 1977 procure, install, and operate the “Best Available Retrofit Technology” (BART). Larger “fossil-fuel fired steam electric plants” are included among the BART source categories. Under the Regional Haze Rule, states are directed to conduct BART determinations for “BART-eligible” sources that may be anticipated to cause or contribute to any visibility impairment in a Class I area. Following the compilation of the BART-eligible sources, the sources are examined to determine whether these sources cause or contribute to visibility impairment in nearby Class I areas.<sup>6</sup> For those sources that are not reasonably anticipated to cause or contribute to any visibility impairment in a Class I area, a BART determination is not required. Those sources are determined to be not subject-to-BART. Sources that are reasonably anticipated to cause or contribute to any visibility impairment in a Class I area are determined to be subject-to-BART. For each source subject to BART, 40 CFR

51.308(e)(1)(ii)(A) requires that states (or EPA, in the case of a FIP) identify the level of control representing BART after considering the factors set out in CAA section 169A(g). The evaluation of BART for EGUs that are located at fossil-fuel-fired power plants having a generating capacity in excess of 750 megawatts must follow the “Guidelines for BART Determinations Under the Regional Haze Rule” at appendix Y to 40 CFR part 51 (hereinafter referred to as the “BART Guidelines”). Rather than requiring source-specific BART controls, states also have the flexibility to adopt an emissions trading program or alternative program (sometimes referred to as a “BART alternative”) as long as the alternative provides greater reasonable progress towards improving visibility than BART. 40 CFR 51.308(e)(2) specifies how a state must conduct the demonstration to show that an alternative program will achieve greater reasonable progress than the installation and operation of BART. 40 CFR 51.308(e)(2)(i)(E) requires a determination, under specific criteria laid out at 40 CFR 51.308(e)(3) or otherwise based on the clear weight of evidence, that the trading program or other alternative measure achieves greater reasonable progress than would be achieved through the installation and operation of BART at the covered sources. Finally, 40 CFR 51.308(e)(4) states that states participating in a Cross-State Air Pollution Rule (CSAPR) trading program need not require BART-eligible fossil fuel-fired steam electric plants to install, operate, and maintain BART for the pollutant covered by that trading program.

Under section 110(c) of the CAA, whenever we disapprove a mandatory SIP submission in whole or in part, we are required to promulgate a FIP within two years unless the state corrects the deficiency and we approve the new SIP submittal.

#### *C. Interstate Transport of Pollutants That Affect Visibility*

Section 110(a) of the CAA directs states to submit SIPs that provide for the implementation, maintenance, and enforcement of each NAAQS, which is commonly referred to as an infrastructure SIP. Among other things, CAA section 110(a)(2)(D)(i)(II) requires that SIPs contain adequate provisions to prohibit interference with measures required to protect visibility in other states. This is commonly referred to as “interstate visibility transport.” States must submit infrastructure SIPs addressing interstate visibility transport, among other requirements, which are due to the EPA within three years after

the promulgation of a new or revised NAAQS (or within such shorter period as we may prescribe). A state’s failure to submit a complete, approvable SIP for interstate visibility transport creates an obligation for the EPA to promulgate a FIP to address this requirement.

#### *D. Previous Actions Related to Texas Regional Haze*

On March 31, 2009, Texas submitted a regional haze SIP (the 2009 Regional Haze SIP) to the EPA that included reliance on Texas’ participation in trading programs under the Clean Air Interstate Rule (CAIR) as an alternative to BART for SO<sub>2</sub> and NO<sub>x</sub> emissions from EGUs.<sup>7</sup> This reliance was consistent with the EPA’s regulations at the time that Texas developed its 2009 Regional Haze SIP,<sup>8</sup> but at the time that Texas submitted this SIP to the EPA, the D.C. Circuit had remanded CAIR (without vacatur).<sup>9</sup> The court left CAIR and our CAIR FIPs in place in order to “temporarily preserve the environmental values covered by CAIR” until we could, by rulemaking, replace CAIR consistent with the court’s opinion. The EPA promulgated CSAPR to replace CAIR in 2011<sup>10</sup> (and revised it in 2012).<sup>11</sup> CSAPR established FIP requirements for a number of states, including Texas, to address the states’ interstate transport obligation under CAA section 110(a)(2)(D)(i)(I). CSAPR addresses interstate transport of fine particulate matter and ozone by requiring affected EGUs in these states to participate in the CSAPR trading programs and establishes emissions budgets that apply to the EGUs’ collective annual emissions of SO<sub>2</sub> and NO<sub>x</sub>, as well as emissions of NO<sub>x</sub> during ozone season.<sup>12</sup>

Following issuance of CSAPR, the EPA determined that CSAPR would achieve greater reasonable progress towards improving visibility than would source-specific BART in CSAPR states (a determination often referred to as “CSAPR better than BART”).<sup>13</sup> In the

<sup>7</sup> CAIR required certain states, including Texas, to reduce emissions of SO<sub>2</sub> and NO<sub>x</sub> that significantly contribute to downwind nonattainment of the 1997 NAAQS for fine particulate matter and ozone. See 70 FR 25152 (May 12, 2005).

<sup>8</sup> See 70 FR 39104 (July 6, 2005).

<sup>9</sup> See *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008), as modified, 550 F.3d 1176 (D.C. Cir. 2008).

<sup>10</sup> 76 FR 48207 (Aug. 8, 2011).

<sup>11</sup> CSAPR was amended three times in 2011 and 2012 to add five states to the seasonal NO<sub>x</sub> program and to increase certain state budgets. 76 FR 80760 (December 27, 2011); 77 FR 10324 (February 21, 2012); 77 FR 34830 (June 12, 2012).

<sup>12</sup> Ozone season for CSAPR purposes is May 1 through September 30.

<sup>13</sup> 77 FR 33641 (June 7, 2012). This determination was recently upheld by the D.C. Circuit. (See *Util.*

<sup>5</sup> See 42 U.S.C. 7491(g)(7) (listing the set of “major stationary sources” potentially subject-to-BART).

<sup>6</sup> See 40 CFR part 51, Appendix Y, III, How to Identify Sources “Subject to BART”.

same action, we revised the Regional Haze Rule to allow states that participate in the CSAPR trading programs to rely on such participation in lieu of requiring EGUs in the state to install BART controls.

In the same action that EPA determined that states could rely on CSAPR to address the BART requirements for EGUs, EPA issued a limited disapproval of a number of states' regional haze SIPs, including the 2009 Regional Haze SIP submittal from Texas, due to the states' reliance on CAIR, which had been replaced by CSAPR.<sup>14</sup> The EPA did not immediately promulgate a FIP to address those aspects of the 2009 Regional Haze SIP submittal subject to the limited disapproval of Texas' regional haze SIP to allow more time for the EPA to assess the remaining elements of the 2009 Texas SIP submittal.

In December 2014, we proposed an action to address the remaining regional haze obligations for Texas.<sup>15</sup> In that action, we proposed, among other things, to rely on our CSAPR FIP subjecting Texas to participation in the CSAPR trading programs to satisfy the NO<sub>x</sub> and SO<sub>2</sub> BART requirements for Texas' EGUs; we also proposed to approve the portions of the 2009 Regional Haze SIP addressing PM BART requirements for the state's EGUs. Before that rule was finalized, however, the D.C. Circuit issued a decision on a number of challenges to CSAPR, denying most claims, but remanding the CSAPR SO<sub>2</sub> and/or seasonal NO<sub>x</sub> emissions budgets of several states to the EPA for reconsideration, including the Phase 2 SO<sub>2</sub> and seasonal NO<sub>x</sub> budgets for Texas.<sup>16</sup> Due to the uncertainty arising from the remand of Texas' CSAPR budgets, we did not finalize our December 2014 proposal to rely on CSAPR to satisfy the SO<sub>2</sub> and NO<sub>x</sub> BART requirements for Texas EGUs.<sup>17</sup> Additionally, because our proposed action on the PM BART provisions for EGUs was dependent on how SO<sub>2</sub> and NO<sub>x</sub> BART were satisfied, we did not take final action on the PM BART elements of the 2009 Texas' Regional Haze SIP. In January 2016, we finalized action on the remaining aspects of the December 2014 proposal. This final action disapproved Texas' Reasonable Progress Goals for the Big Bend and Guadalupe Mountains Class I areas in Texas, Texas's reasonable

progress analysis and Texas's long-term strategy. EPA promulgated a FIP establishing a new long-term strategy that consisted of SO<sub>2</sub> emission limits for 15 coal fired EGUs at eight power plants. That rulemaking was challenged, however, and in July 2016, the Fifth Circuit granted the petitioners' motion to stay the rule pending review. In December 2016, following the submittal of a request by the EPA for a voluntary remand of the parts of the rule under challenge, the Fifth Circuit Court of Appeals remanded the rule in its entirety.<sup>18</sup>

On October 26, 2016, the EPA finalized an update to CSAPR to address the interstate transport requirements of CAA section 110(a)(2)(D)(i)(I) with respect to the 2008 ozone NAAQS (CSAPR Update).<sup>19</sup> The EPA also responded to the D.C. Circuit's remand of certain CSAPR seasonal NO<sub>x</sub> budgets in that action. As to Texas, the EPA withdrew Texas' seasonal NO<sub>x</sub> budget finalized in CSAPR to address the 1997 ozone NAAQS. However, in that same action, the EPA promulgated a FIP with a revised seasonal NO<sub>x</sub> budget for Texas to address the 2008 ozone NAAQS.<sup>20</sup> Accordingly, Texas remains subject to CSAPR seasonal NO<sub>x</sub> requirements.

On November 10, 2016, in response to the D.C. Circuit's remand of Texas's CSAPR SO<sub>2</sub> budget, we proposed to withdraw the FIP provisions that required EGUs in Texas to participate in the CSAPR trading programs for annual emissions of SO<sub>2</sub> and NO<sub>x</sub>.<sup>21</sup> We also proposed to reaffirm that CSAPR continues to provide for greater reasonable progress than BART following our actions taken to address the D.C. Circuit's remand of Texas' SO<sub>2</sub> budget and the CSAPR emissions budgets of several additional states. On September 29, 2017, we finalized the withdrawal of the FIP provisions for annual emissions of SO<sub>2</sub> and NO<sub>x</sub> for EGUs in Texas<sup>22</sup> and affirmed our proposed finding that the EPA's 2012 analytical demonstration remains valid and that participation in the CSAPR trading programs as they now exist meets the Regional Haze Rule's criteria for an alternative to BART.

On January 4, 2017, we proposed a FIP to address the EGU BART requirements for Texas' EGUs. In that action, we proposed to replace the 2009 Regional Haze SIP's reliance on CAIR

with reliance on our CSAPR FIP to address the NO<sub>x</sub> BART requirements for EGUs.<sup>23</sup> This portion of our proposal was based on the CSAPR Update and our separate November 10, 2016 proposed finding that the EPA's actions in response to the D.C. Circuit's remand would not adversely impact our 2012 demonstration that participation in the CSAPR trading programs meets the Regional Haze Rule's criteria for alternatives to BART (sometimes referred to as a finding that "CSAPR is still better than BART").<sup>24</sup> We noted that we could not finalize this portion of our proposed FIP to address the NO<sub>x</sub> BART requirements for EGUs unless and until we finalized our proposed finding that CSAPR was still better than BART.

Our January 4, 2017 proposed action addressing the BART requirements for Texas EGUs acknowledged that because Texas would no longer be participating in the CSAPR program for SO<sub>2</sub>, and thus would no longer be eligible to rely on participation in CSAPR as an alternative to source-specific EGU BART for SO<sub>2</sub> under 40 CFR 51.308(e)(4), there were BART requirements that were left unfulfilled with respect to Texas's EGU emissions of SO<sub>2</sub> that would need to be fulfilled by either an approved SIP or an EPA-issued FIP that satisfied the BART requirements under 40 CFR 51.308(e)(1) or constituted a viable BART alternative under 40 CFR 51.308(e)(2) for those emissions. EPA proposed to satisfy these requirements through a BART FIP, entailing the identification of BART-eligible EGU sources, screening of sources to identify subject-to-BART sources, and source-by-source determinations of SO<sub>2</sub> BART controls as appropriate. For those EGU sources we proposed to find subject to BART, we proposed to promulgate source-specific SO<sub>2</sub> requirements. We proposed SO<sub>2</sub> emission limits on 29 EGUs located at 14 facilities.

In the January 2017 proposal, we also proposed to disapprove the portion of the 2009 Regional Haze SIP that made BART determinations for PM from EGUs, on the grounds that the demonstration in the 2009 Texas Regional Haze SIP relied on underlying assumptions as to how the SO<sub>2</sub> and NO<sub>x</sub> BART requirements for EGUs were being met that were no longer valid with the proposed source-specific SO<sub>2</sub> requirements.<sup>25</sup> In place of these

*Air Regulatory Grp. v. EPA*, 885 F.3d 714 (D.C. Cir. 2018)).

<sup>14</sup> *Id.*

<sup>15</sup> 79 FR 74818 (Dec. 16, 2014).

<sup>16</sup> *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118, 132 (D.C. Cir. 2015).

<sup>17</sup> 81 FR 296 (Jan. 5, 2016).

<sup>18</sup> *Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016).

<sup>19</sup> 81 FR 74504 (Oct. 26, 2016).

<sup>20</sup> 81 FR 74504, 74524–25.

<sup>21</sup> 81 FR 78954.

<sup>22</sup> 82 FR 45481 (Sept. 29, 2017). Texas continues to be subject to portions of our CSAPR FIP, under which it participates in CSAPR for ozone season

<sup>23</sup> 82 FR 912, 914–15 (Jan. 4, 2017).

<sup>24</sup> 81 FR 74504 (Nov. 10, 2016).

<sup>25</sup> In the 2009 Regional Haze Texas SIP, for EGU BART, Texas' BART EGUs' emissions of both SO<sub>2</sub> and NO<sub>x</sub> were covered by participation in trading programs, which allowed Texas to conduct a



determinations, we proposed to promulgate source-specific PM BART requirements based on existing practices and control capabilities for those EGUs that we proposed to find subject to BART. Previously, we had proposed to approve the EGU BART determinations for PM in the 2009 Texas Regional Haze SIP, and this proposal had never been withdrawn.<sup>26</sup> At that time, CSAPR was an appropriate alternative for SO<sub>2</sub> and NO<sub>x</sub> BART for EGUs. The 2009 Texas Regional Haze SIP included a pollutant-specific screening analysis for PM to demonstrate that Texas EGUs were not subject to BART for PM. In a 2006 guidance document,<sup>27</sup> the EPA stated that pollutant-specific screening can be appropriate where a state is relying on a BART alternative to address both NO<sub>x</sub> and SO<sub>2</sub> BART. However, in the January 2017 proposal, we proposed to disapprove the PM BART determination since SO<sub>2</sub> BART was no longer addressed by a BART alternative. In our October 2017 FIP, we approved the 2009 Regional Haze SIP PM BART determination because the SO<sub>2</sub> requirements were addressed by a BART alternative, making the original pollutant-specific screening demonstration once again an appropriate approach.

In our October 2017 rulemaking, we finalized our January 2017 proposed determination that Texas' participation in CSAPR's trading program for ozone-season NO<sub>x</sub> qualifies as an alternative to source-specific NO<sub>x</sub> BART. We also determined that the SO<sub>2</sub> BART requirements for all BART-eligible coal-fired units and a number of BART-eligible gas- or gas/fuel oil-fired units are satisfied by a BART alternative for SO<sub>2</sub>—specifically, an intrastate trading program addressing emissions of SO<sub>2</sub> from certain EGUs in Texas. Finally, we approved the 2009 Regional Haze SIP's determination that Texas' EGUs are not subject to BART for PM. The remaining BART-eligible EGUs not covered by the

screening analysis of the visibility impacts from PM emissions in isolation. However, modeling on a pollutant-specific basis for PM is appropriate only in the narrow circumstance of reliance on BART alternatives to satisfy both NO<sub>x</sub> and SO<sub>2</sub> BART. Due to the complexity and nonlinear nature of atmospheric chemistry and chemical transformation among pollutants, EPA has not recommended performing modeling on a pollutant-specific basis to determine whether a source is subject to BART, except in the unique situation described above. See discussion in Memorandum from Joseph Paisie to Kay Prince, "Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations," July 19, 2006.

<sup>26</sup> 79 FR 74817, 74853–54 (Dec. 16, 2014).

<sup>27</sup> See discussion in Memorandum from Joseph Paisie to Kay Prince, "Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations," July 19, 2006.

SO<sub>2</sub> BART alternative were previously determined to be not subject to BART based on methods using model plants and CALPUFF<sup>28</sup> modeling as described in our proposed rule and BART Screening technical support document (TSD).<sup>29</sup> With respect to visibility transport obligations, we determined that the BART alternative to address SO<sub>2</sub> and Texas' participation in CSAPR's trading program for ozone-season NO<sub>x</sub> to address NO<sub>x</sub> BART at Texas' EGU fully addresses the obligations for six NAAQS.

As explained above, EPA received a petition for reconsideration of issues related to the SO<sub>2</sub> intrastate trading program promulgated in the October 2017 rule. As stated in our letter in response to that petition dated April 30, 2018, we believe certain specific aspects of the federal plan can benefit from further public comment. Therefore, in this notice, we are proposing to affirm certain aspects of our SIP approval and of the FIP, and to provide the public with an opportunity to comment on those particular aspects, as well as other specified related issues.

## II. Summary of This Proposed Action

In this notice, we are taking comment on the following elements: (1) This proposal to affirm the October 2017 FIP establishing an intrastate trading program addressing emissions of SO<sub>2</sub> from certain EGUs in Texas as a BART alternative and the determination that this program satisfies the requirements for BART alternatives; (2) this proposal to affirm the finding that the BART alternatives in the October 2017 rulemaking to address SO<sub>2</sub> and NO<sub>x</sub> BART at Texas' EGUs result in emission reductions adequate to satisfy the requirements of CAA section 110(a)(2)(D)(i)(II) with respect to visibility for a number of NAAQS issued

<sup>28</sup> CALPUFF (California Puff Model) is a multi-layer, multi-species non-steady-state puff dispersion modeling system that simulates the effects of time- and space-varying meteorological conditions on pollutant transport, transformation, and removal. CALPUFF is intended for use in assessing pollutant impacts at distances greater than 50 kilometers to several hundreds of kilometers. It includes algorithms for calculating visibility effects from long range transport of pollutants and their impacts on Federal Class I areas. EPA previously approved the use of the CALPUFF model in BART related analyses (40 CFR part 51 Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations; Final Rule; FR Vol. 70 No. 128 Pages 39104–39172; July 6, 2005). For instructions on how to download the appropriate model code and documentation that are available from Exponent (Model Developer/Owner) at no cost for download, see EPA's website: <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#calpuff>.

<sup>29</sup> See document at docket identification number EPA–R06–OAR–0611–0005.

between 1997 and 2010; and (3) this proposal to affirm our October 2017 approval of Texas' SIP determination that no sources are subject to BART for PM. We are not soliciting comment on our final determination that CSAPR addresses the NO<sub>x</sub> BART requirements for EGUs in Texas.<sup>30</sup>

### A. Regional Haze

#### 1. SO<sub>2</sub> BART

In our January 2017 proposed action, we proposed BART limits based on our source-specific BART determinations for certain EGUs in Texas. We proposed this approach to address the SO<sub>2</sub> BART requirements following the remand from the D.C. Circuit in *EME Homer City II*<sup>31</sup> of certain CSAPR emission budgets that created uncertainty regarding our proposed reliance on CSAPR to satisfy the SO<sub>2</sub> BART requirements for EGUs in Texas. However, based on comments we received in response to our January 2017 proposal, including views expressed by Texas, we finalized, as a BART alternative, a program establishing emission caps using CSAPR allocations for certain EGUs in Texas in our October 2017 final action. The EPA determined that, because this BART alternative would result in SO<sub>2</sub> emissions from Texas EGUs similar to emissions anticipated under CSAPR, the alternative is an appropriate approach for addressing Texas' SO<sub>2</sub> BART obligations and, in the context of the operation of the CSAPR ozone-season NO<sub>x</sub> trading program and the operation of the CSAPR annual NO<sub>x</sub> and SO<sub>2</sub> trading programs, will achieve greater reasonable progress than BART towards restoring visibility, consistent with the June 2012 "CSAPR better than BART" and September 2017 "CSAPR still better than BART" determinations. In today's proposed action, we are proposing to affirm our determination that the intrastate trading program is an appropriate SO<sub>2</sub> BART alternative for EGUs in Texas.

The BART alternative has been designed to achieve SO<sub>2</sub> emission levels that are functionally equivalent to those projected for Texas' participation in the original CSAPR program. The BART alternative applies the CSAPR allowance allocations for SO<sub>2</sub> to all BART-eligible coal-fired EGUs, several additional coal-fired EGUs, and several BART-eligible gas-fired and gas/fuel oil-

<sup>30</sup> For additional information regarding the determination that CSAPR addresses the NO<sub>x</sub> BART requirements for EGUs in Texas, please see our January 2017 proposal, and our October 2017 final action, including response to comments. These actions are included in the docket for this action.

<sup>31</sup> *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118, 132 (D.C. Cir. 2015).



fired EGUs. In addition to being a sufficient alternative to BART, we are proposing to affirm our October 2017 determination that the BART alternative secures reductions consistent with visibility transport requirements and is part of the long-term strategy to meet the reasonable progress requirements of the Regional Haze Rule.

We propose to affirm that the combination of the source coverage for

this program, the total allocations for EGUs covered by the program, and recent and foreseeable emissions trends from those EGUs both covered and not covered by the program will result in future EGU emissions in Texas that are similar to or less than the SO<sub>2</sub> emission levels forecast in the 2012 better-than-BART demonstration for Texas EGU emissions assuming CSAPR participation. We propose to affirm that

the intrastate trading program meets the requirements for a BART alternative and therefore satisfies the SO<sub>2</sub> BART requirements for the BART-eligible coal-fired EGUs and gas- and gas/fuel oil-fired EGUs in the following table. See Section IV.B for a discussion on identification of sources covered by the program.

TABLE 1—TEXAS EGUS SUBJECT TO THE FIP SO<sub>2</sub> TRADING PROGRAM

Owner/operator	Units	BART-eligible
AEP .....	Welsh Power Plant Unit 1 .....	Yes.
	Welsh Power Plant Unit 2 .....	Yes.
	Welsh Power Plant Unit 3 .....	No.
	H W Pirkey Power Plant Unit 1 .....	No.
	Wilkes Unit 1 * .....	Yes.
	Wilkes Unit 2 * .....	Yes.
CPS Energy .....	Wilkes Unit 3 * .....	Yes.
	JT Deely Unit 1 .....	Yes.
	JT Deely Unit 2 .....	Yes.
	Sommers Unit 1 * .....	Yes.
Dynergy/Vistra .....	Sommers Unit 2 * .....	Yes.
	Coletto Creek Unit 1 .....	Yes.
LCRA .....	Fayette/Sam Seymour Unit 1 .....	Yes.
	Fayette/Sam Seymour Unit 2 .....	Yes.
Vistra/Luminant .....	Big Brown Unit 1 .....	Yes.
	Big Brown Unit 2 .....	Yes.
	Martin Lake Unit 1 .....	Yes.
	Martin Lake Unit 2 .....	Yes.
	Martin Lake Unit 3 .....	Yes.
	Monticello Unit 1 .....	Yes.
	Monticello Unit 2 .....	Yes.
	Monticello Unit 3 .....	Yes.
	Sandow Unit 4 .....	No.
	Stryker ST2 * .....	Yes.
	Graham Unit 2 * .....	Yes.
NRG .....	Limestone Unit 1 .....	No.
	Limestone Unit 2 .....	No.
	WA Parish Unit WAP4 * .....	Yes.
	WA Parish Unit WAP5 .....	Yes.
	WA Parish Unit WAP6 .....	Yes.
	WA Parish Unit WAP7 .....	No.
Xcel .....	Tolk Station Unit 171B .....	No.
	Tolk Station Unit 172B .....	No.
	Harrington Unit 061B .....	Yes.
	Harrington Unit 062B .....	Yes.
El Paso Electric .....	Harrington Unit 063B .....	No.
	Newman Unit 2 * .....	Yes.
	Newman Unit 3 * .....	Yes.
	Newman Unit 4 * .....	Yes.

\* Gas-fired or gas/fuel oil-fired units.

This BART alternative includes all BART-eligible coal-fired units in Texas, additional coal-fired EGUs, and some additional BART-eligible gas and gas/fuel oil-fired units. Moreover, we propose to affirm that the differences in source coverage between CSAPR and this BART alternative are either not significant or, in fact, work to demonstrate the relative stringency of this BART alternative as compared to CSAPR. This relative stringency is demonstrated in the following points:

A. Covered sources under the BART alternative in this FIP represent 89%<sup>32</sup> of all SO<sub>2</sub> emissions from all Texas EGUs in both 2016 and 2017, and approximately 85% of CSAPR allocations for existing units in Texas.

B. The remaining 11% (100 minus 89) of 2016 and 2017 emissions from

<sup>32</sup> In 2016, EGUs included in the program emitted 218,291 tons of SO<sub>2</sub>, and other EGUs emitted 27,446 tons from other EGUs (11.1% of the total emitted by Texas EGUs). In 2017, sources included in the program emitted 245,870 tons of SO<sub>2</sub>, and other EGUs emitted 30,096 (10.9%).

sources not covered by the BART alternative come from gas units that rarely burn fuel oil or from coal-fired units that on average are better controlled for SO<sub>2</sub> than the covered sources and generally are less relevant to visibility impairment. As such, any shifting of generation to non-covered sources, as might occur if a covered source were to reduce its operation in order to remain within its SO<sub>2</sub> emissions allowance allocation, would

result in fewer emissions to generate the same amount of electricity.

C. Furthermore, the non-inclusion of a large number of gas-fired units that rarely burn fuel oil reduces the amount of available allowances for such units that would typically and collectively be expected to use only a fraction of CSAPR emissions allowances. Many of these sources typically emit at levels much lower than their allocation level. Should sources not participating in the program choose to opt in, thereby increasing the number of available allowances, this would serve to make the program more closely resemble CSAPR.

D. The BART alternative does not allow purchasing of allowances from out-of-state sources. Emission projections under CAIR and CSAPR showed that Texas sources were anticipated to purchase allowances from out-of-state sources.<sup>33 34</sup>

Based on these points, and applying as appropriate the principles of the rules and program design of CSAPR to a program designed to apply to and for Texas, we are proposing to affirm our earlier determinations regarding SO<sub>2</sub> BART coverage for EGUs by means of a BART alternative under an intrastate trading program. In 2014, we had originally proposed that participation in a CSAPR SO<sub>2</sub> trading program would satisfy the SO<sub>2</sub> BART requirement for Texas EGUs.<sup>35</sup> The October 2017 final action and this proposal rely in large

part on substantially similar technical elements. In contrast to the 2014 proposal, however, the intrastate trading program SO<sub>2</sub> BART alternative would not meet the terms of 40 CFR 51.308(e)(4), as amended, because that regulatory provision provides BART coverage for pollutants covered by the CSAPR trading program in the State. In September 2017, EPA finalized the removal of Texas from the CSAPR SO<sub>2</sub> trading program.<sup>36</sup> Instead, we are relying on the BART alternative option provided under 40 CFR 51.308(e)(2). The BART alternative we are proposing to affirm today is supported by our determination that the trading program achieves greater reasonable progress than BART. The BART alternative is designed to achieve SO<sub>2</sub> emission levels from Texas sources similar to the SO<sub>2</sub> emission levels that would have been achieved under CSAPR. Relying on a quantitative and qualitative assessment of the operation of the BART alternative, we propose to affirm our determination that emission levels under this program, and their aggregate impact on visibility, will be on average no greater than those from Texas EGUs that would have been realized from the SO<sub>2</sub> trading program under CSAPR. Accordingly, for materially the same reasons underlying our June 2012 “CSAPR better than BART” and September 2017 “CSAPR still better than BART” determinations, and the March 2018 court opinion<sup>37</sup> upholding CSAPR better than BART, the SO<sub>2</sub> BART FIP for Texas’ BART-eligible EGUs participating in the trading program will achieve greater reasonable progress than BART with respect to SO<sub>2</sub>.

In our January 2017 proposed action and in our October 2017 final action, we determined that the BART-eligible EGUs not participating in the program were not causing or contributing to visibility impairment, and were therefore not subject to BART. In today’s proposed rule, we are not re-opening the determination that these units are not subject to BART.

The Regional Haze Rule at 40 CFR 51.308(e)(2)(iii) requires that the emission reductions from BART alternatives occur “during the period of the first long-term strategy for regional haze.” The SO<sub>2</sub> BART alternative that EPA is proposing here will be implemented beginning in January 2019, and thus emission reductions needed to meet the allowance allocations must take place by the end of 2019. For the purpose of evaluating

Texas’ BART alternative, the end of the period of the first long-term strategy for Texas is 2021, consistent with the requirement that states submit revisions to their long-term strategy to address the second planning period by July 31, 2021.<sup>38</sup> Therefore, we propose to affirm our determination that because the emission reductions from the Texas SO<sub>2</sub> trading program will be realized prior to that date, the necessary emission reductions will take place within the period of Texas’ first long-term strategy for regional haze.

In proposing to affirm the regulatory terms and rules for implementing the BART alternative, we are mindful of the minimally required elements for a BART alternative emissions trading program that are specified in the provisions of 40 CFR 51.308(e)(2)(vi)(A)–(L). In a generic sense, these types of provisions are foundational to the establishment of allowance markets. CSAPR is a prominent example of such an allowance market, and we have designed this BART alternative guided by transferring and generally incorporating well-tested program rules and terms from the provisions of CSAPR; we have ensured that the BART alternative will conform to the provisions necessary and appropriate that are needed for an emissions trading program covered by a cap.

EPA requests comment on our proposal to affirm the October 2017 FIP establishing an intrastate trading program addressing emissions of SO<sub>2</sub> from certain EGUs in Texas as a BART alternative and our determinations that this program satisfies the requirements for BART alternatives.

## 2. PM BART

The 2009 Texas Regional Haze SIP included a pollutant-specific screening analysis for PM to demonstrate that Texas EGUs were not subject to BART for PM. This approach was consistent with a 2006 guidance document in which the EPA stated that pollutant-specific screening can be appropriate where a state is relying on a BART alternative to address both NO<sub>x</sub> and SO<sub>2</sub> BART. The majority of Texas’ BART-eligible EGUs rely on BART alternatives for both SO<sub>2</sub> and NO<sub>x</sub> emissions and we approved Texas’ pollutant-specific screening analysis as appropriate. All of the BART-eligible sources participating in the SO<sub>2</sub> intrastate trading program have visibility impacts from PM alone below the subject-to-BART threshold of 0.5 deciviews (dv). Furthermore, the BART-eligible sources not participating

<sup>33</sup> See CAIR 2018 emission projections of approximately 350,000 tons SO<sub>2</sub> emitted from Texas EGUs compared to CAIR budget for Texas of 225,000 tons. See section 10 of the 2009 Texas Regional Haze SIP.

<sup>34</sup> For the projected annual SO<sub>2</sub> emissions from Texas EGUs under CSAPR See Technical Support Document for Demonstration of the Transport Rule as a BART Alternative, Docket ID No. EPA–HQ–OAR–2011–0729–0014 (December 2011) (2011 CSAPR/BART Technical Support Document), available in the docket for this action at table 2–4. Certain CSAPR budgets were increased after promulgation of the CSAPR final rule (and the increases were addressed in the 2012 CSAPR/BART sensitivity analysis memo. See memo entitled “Sensitivity Analysis Accounting for Increases in Texas and Georgia Transport Rule State Emissions Budgets,” Docket ID No. EPA–HQ–OAR–2011–0729–0323 (May 29, 2012), available in the docket for this action. The increase in the Texas SO<sub>2</sub> budget was 50,517 tons which, when added to the Texas SO<sub>2</sub> emissions projected in the CSAPR + BART-elsewhere scenario of 266,600 tons, yields total potential SO<sub>2</sub> emissions from Texas EGUs of approximately 317,100 tons. Texas SO<sub>2</sub> emissions projected in the CSAPR + BART-elsewhere scenario of 266,600 tons compared to the original CSAPR budget of 243,954. The CSAPR budget for Texas after adjustments was 294,471 tons.

<sup>35</sup> 79 FR 74817, 74823 (December 16, 2014) (“We propose to replace Texas’ reliance on CAIR to satisfy the BART requirement for EGUs with reliance on CSAPR.”). This part of the 2014 proposal was not finalized in the action taken on January 5, 2016, that has since been remanded by the Fifth Circuit Court of Appeals. 81 FR 295.

<sup>36</sup> 2 FR 45481 (Sept. 29, 2017). See docket EPA–HQ–OAR–2016–0598 for additional information.

<sup>37</sup> *Util. Air Regulatory Grp. v. EPA*, 885 F.3d 714 (D.C. Cir. 2018).

<sup>38</sup> 40 CFR 51.308(f).

in the intrastate trading program were screened out of BART for all visibility impairing pollutants. EPA requests comments on our proposal to affirm our October 2017 approval of the portion of the Texas Regional Haze SIP that determined that PM BART emission limits are not required for any Texas EGUs.

### *B. Interstate Transport of Pollutants That Affect Visibility*

In our January 5, 2016 final action<sup>39</sup> we disapproved the portion of Texas' SIP revisions intended to address interstate visibility transport for six NAAQS, including the 1997 8-hour ozone and 1997 PM<sub>2.5</sub>.<sup>40</sup> That rulemaking was challenged, however, and in December 2016, following a stay of the rule by the Fifth Circuit Court of Appeals in *Texas v. EPA* and EPA's submittal of a subsequent request by the EPA for a voluntary remand of the parts of the rule under challenge, the Fifth Circuit Court of Appeals remanded the rule in its entirety without vacatur.<sup>41</sup> In our October 2017 final action, we again finalized our disapproval of Texas' SIP revisions addressing interstate visibility transport under CAA section 110(a)(2)(D)(i)(II) for six NAAQS. As explained in our January 2017 proposal, Texas' infrastructure SIP revisions for these six NAAQS relied on its 2009 Regional Haze SIP, including that SIP's reliance on CAIR as an alternative to EGU BART for SO<sub>2</sub> and NO<sub>x</sub>, to meet the interstate visibility transport requirements.<sup>42</sup> We are now proposing to affirm that Texas' participation in CSAPR to satisfy NO<sub>x</sub> BART and our SO<sub>2</sub> intrastate trading program, fully addresses Texas' interstate visibility transport obligations for the following six NAAQS: (1) 1997 8-hour ozone; (2) 1997 PM<sub>2.5</sub> (annual and 24 hour); (3) 2006 PM<sub>2.5</sub> (24-hour); (4) 2008 8-hour ozone; (5) 2010 1-hour NO<sub>2</sub>; and (6) 2010 1-hour SO<sub>2</sub>. The basis of this proposed affirmation is our determination in the October 2017 final action that the regional haze measures in place for Texas are adequate to ensure that emissions from the State do

not interfere with measures to protect visibility in nearby states because the emission reductions are consistent with the level of emissions reductions relied upon by other states during consultation. EPA requests comment on our proposal to affirm the finding that the BART alternatives in the October 2017 rulemaking result in emission reductions adequate to satisfy the requirements of CAA section 110(a)(2)(D)(i)(II) with respect to visibility for six NAAQS issued between 1997 and 2010.

### **III. PM BART**

In our January 2017 proposal, we proposed to disapprove Texas' technical evaluation and determination in the 2009 Regional Haze SIP that PM BART emission limits are not required for any of Texas' EGUs. That SIP included a pollutant-specific screening analysis for PM to demonstrate that Texas EGUs were not subject to BART for PM. This approach was consistent with a 2006 guidance document<sup>43</sup> in which the EPA stated that pollutant-specific screening can be appropriate where a state is relying on a BART alternative to address both NO<sub>x</sub> and SO<sub>2</sub> BART. However, because we proposed to address SO<sub>2</sub> BART on a source-specific basis, Texas' pollutant-specific screening was not appropriate and we proposed source-specific PM BART emission limits consistent with existing practices and controls. In our October 2017 final action, we did not issue source-specific SO<sub>2</sub> BART determinations. Instead, for the majority of Texas' BART-eligible EGUs, we relied on BART alternatives for both SO<sub>2</sub> and NO<sub>x</sub> emissions and approved Texas' pollutant-specific screening analysis as appropriate.<sup>44</sup> All of the BART-eligible sources participating in the intrastate trading program have visibility impacts from PM alone below the subject-to-BART threshold of 0.5 deciviews (dv).<sup>45</sup> Furthermore, the BART-eligible sources not participating in the intrastate trading program were screened out of BART for all visibility impairing pollutants. As such, we are proposing to affirm our October 2017 approval of the

portion of the Texas Regional Haze SIP that determined that PM BART emission limits are not required for any Texas EGUs, and are requesting comment on this proposal.

As we explained in the January 2017 proposal, the 2009 Regional Haze SIP did not evaluate PM impacts from all BART-eligible EGUs. We evaluated and determined that this omission did not affect Texas' conclusion that no BART-eligible EGUs should be subject-to-BART for PM emissions. In our January 2017 proposal and as finalized in our October 2017 action, we identified several facilities as BART-eligible that Texas did not identify as BART eligible in its 2009 Regional Haze SIP. Specifically, we identified the following additional BART-eligible sources: Coletto Creek Unit 1 (Dynegy), Dansby Unit 1 (City of Bryan), Greens Bayou Unit 5 (NRG), Handley Units 3,4, and 5 (Exelon), Lake Hubbard Units 1 and 2 (Luminant), Plant X Unit 4 (Xcel), Powerlane Units ST1, ST2, and ST3 (City of Greenville), R W Miller Units 1, 2, and 3 (Brazos Elec.), Spencer Units 4 and 5 (City of Garland), and Stryker Creek Unit ST2 (Luminant). Based on CALPUFF modeling and a model-plant analysis, we found that all of these facilities except Coletto Creek and Stryker Creek had impacts from NO<sub>x</sub>, SO<sub>2</sub>, and PM below the BART screening level.<sup>46</sup> CALPUFF modeling showed that Stryker Creek Unit ST2 had a visibility impact of 0.786 dv from NO<sub>x</sub>, SO<sub>2</sub>, and PM. However, Stryker Creek Unit ST2 is now covered by a BART alternative for NO<sub>x</sub> and SO<sub>2</sub>, so we evaluated the visibility impact of Stryker Creek Unit ST2's PM emissions alone. The CALPUFF modeling files and spreadsheets included in our January 2017 proposal indicate that light extinction from PM (PM<sub>Fine</sub> and PM<sub>Coarse</sub>) is less than 1% of total light extinction at all Class I areas. Therefore, because the visibility impact attributable to PM emissions from Stryker Creek Unit ST2 would be a small fraction (roughly 1%) of the 0.786 dv aggregate impact of the unit's emissions from all pollutants, we propose to affirm our determination that the source is not subject to BART for PM under EPA's 2006 guidance, and are requesting comment on this proposal.

We also evaluated the potential visibility impact of PM emissions from

<sup>39</sup> 81 FR 296 (Jan. 5, 2016).

<sup>40</sup> Specifically, we previously disapproved the relevant portion of these Texas' SIP submittals: April 4, 2008: 1997 8-hour Ozone, 1997 PM<sub>2.5</sub> (24-hour and annual); May 1, 2008: 1997 8-hour Ozone, 1997 PM<sub>2.5</sub> (24-hour and annual); November 23, 2009: 2006 24-hour PM<sub>2.5</sub>; December 7, 2012: 2010 NO<sub>2</sub>; December 13, 2012: 2008 8-hour Ozone; May 6, 2013: 2010 1-hour SO<sub>2</sub> (Primary NAAQS). 79 FR 74818, 74821; 81 FR 296, 302.

<sup>41</sup> *Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016).

<sup>42</sup> *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118, 133–34 (DC Cir. 2015) (holding that SIPs based on CAIR were unapprovable to fulfill good neighbor obligations).

<sup>43</sup> See discussion in Memorandum from Joseph Paisie to Kay Prince, "Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations," July 19, 2006.

<sup>44</sup> We originally proposed to approve Texas' screening approach in 2014, and the basis of our proposal today remains consistent with the technical evaluation we provided at that time. See 79 FR 74817, 74848 (Dec. 16, 2014).

<sup>45</sup> Stryker Creek is covered by CSAPR for NO<sub>x</sub> and by the SO<sub>2</sub> trading program but was not included in the 2009 Regional Haze SIP. How Stryker Creek is screened out for PM is discussed below.

<sup>46</sup> EPA determined that Dansby, Greens Bayou, Handley, Lake Hubbard, Plant X, Powerlane, R W Miller, and Spencer are not subject to BART based on the methodologies utilizing model plants and CALPUFF modeling as described in our January 2017 proposed rule and BART Screening TSD (Available in the docket for this action, document ID EPA-R06-OAR-2016-0611-0005).



Coletto Creek Unit 1 using the CAMx modeling that Texas used for PM BART screening of its EGU sources in its 2009 Regional Haze SIP.<sup>47</sup> Specifically, we evaluated the modeling results for two facilities (LCRA Fayette and Sommers Deely) that have stack parameters similar to Coletto Creek's, but that are located closer to Class I areas than Coletto Creek. Texas grouped the LCRA Fayette Facility together with other sources into Group 2 of their PM screening modeling and found that this group's maximum aggregate impacts at all Class I areas were less than 0.25 deciviews (dv). Texas also modeled the City Public Service Sommers Deely Facility's PM impacts. Maximum impacts at all Class I areas from Sommers Deely were less than 0.32 dv. To extend these model results to Coletto Creek, we used the Q/D ratio where Q is the maximum annual PM emissions<sup>48</sup> and D is the distance to the nearest receptor in a Class I area. If the Q/D ratio of Coletto Creek is smaller than the ratios for the two modeling results (Fayette and Sommers Deely) then Coletto Creek's impacts can be estimated as less than the impacts of these source(s) and thus be screened out. We evaluated the closest Class I areas (Big Bend, Guadalupe Mountains, Carlsbad, Wichita Mountains, and Caney Creek) and the Q/D ratios were: Coletto Creek (0.59–0.86), Fayette (4.25–6.1), and Sommers Deely (6.0–10.05).<sup>49</sup> The Q/D ratio for Fayette is 6 to 8 times larger than for Coletto Creek, while the Q/D ratio for Sommers Deely is 9 to 11.6 times higher than for Coletto Creek. Therefore, if we were to model the PM impacts from Coletto Creek, they would be an order of magnitude smaller than the impacts from these facilities, which themselves are well below the threshold of 0.5 dv. Therefore, we propose to affirm our determination that Coletto Creek is not subject to BART for PM emissions, and are requesting comment on this proposal.

We originally proposed to approve Texas' screening approach in 2014,<sup>50</sup> and the basis of our proposal today remains consistent with the technical evaluation we provided at that time.

#### IV. The SO<sub>2</sub> Trading Program and Its Implications for Interstate Visibility Transport and EGU BART

The Regional Haze Rule provides each state with the flexibility to adopt an emissions trading program or other alternative measure instead of requiring source-specific BART controls, so long as the alternative measure is demonstrated to achieve greater reasonable progress than BART. In our October 2017 final rulemaking, we acknowledged the State's preference and promulgated a BART alternative for SO<sub>2</sub> for certain Texas EGUs. The rationale that the BART alternative would be better than BART was based on the combination of the source coverage for this program and the total allocations for EGUs covered by the program, which along with the recent and foreseeable emissions trends from EGUs both covered and not covered by the program indicate that the BART alternative will result in future EGU emissions in Texas that are similar to what was forecast in the 2012 "CSAPR better than BART" demonstration for Texas EGU emissions that assumed Texas would be subject to CSAPR for all pollutants participation. Today's proposed rule reiterates our finding in the October 2017 rule and affirms that it continues to support the promulgated FIP.

##### *A. Background on the Concept of CSAPR as an Alternative to BART*

In 2012, the EPA amended the Regional Haze Rule to provide that participation by a state's EGUs in a CSAPR trading program for a given pollutant qualifies as a BART alternative for those EGUs for that pollutant.<sup>51</sup> In promulgating this "CSAPR-better-than-BART" rule (also referred to as "Transport Rule as a BART Alternative"), the EPA relied on an analytic demonstration based on an air quality modeling study<sup>52</sup> showing that CSAPR implementation meets the Regional Haze Rule's criteria for a demonstration of greater reasonable progress than BART. In the air quality modeling study conducted for the 2012

analytic demonstration, the EPA projected visibility conditions in affected Class I areas<sup>53</sup> based on 2014 emissions projections for two control scenarios and on the 2014 base case emissions projections.<sup>54</sup> One control scenario represents "Nationwide BART" and the other represents "CSAPR+BART-elsewhere."<sup>55</sup> In the base case, neither BART controls nor the EGU SO<sub>2</sub> and NO<sub>x</sub> emissions reductions attributable to CSAPR were reflected. To project emissions under CSAPR, the EPA assumed that the geographic scope and state emissions budgets for CSAPR would be implemented as finalized in 2011, and the EPA's final analysis also accounted for several amendments to the CSAPR budgets that were finalized in 2012.<sup>56</sup> The results of that analytic demonstration based on this air quality modeling passed the two-pronged test set forth at 40 CFR 51.308(e)(3). The first prong requires that the alternative program will not cause a decline in visibility at any affected Class I area. The second prong requires that the alternative program results in improvements in average visibility across all affected Class I areas as compared to adopting source-specific BART. Together, these tests ensure that the alternative program provides for greater visibility improvement than would source-specific BART.

For purposes of the 2012 analytic demonstration that CSAPR as finalized and amended in 2011 and 2012 provides for greater reasonable progress than BART, the analysis included Texas EGUs as subject to CSAPR for SO<sub>2</sub> and annual NO<sub>x</sub> (as well as ozone-season NO<sub>x</sub>). CSAPR's emissions limitations are defined in terms of emissions "budgets" for the collective emissions from affected EGUs in each covered state. Sources can purchase allowances from sources outside of the state, so total projected emissions for a state may,

<sup>53</sup> The EPA identified two possible sets of affected Class I areas to consider for purposes of the study and found that implementation of CSAPR met the criteria for a BART alternative whichever set was considered. See 77 FR 33641, 33650 (June 7, 2012).

<sup>54</sup> For additional detail on the 2014 base case, see the CSAPR Final Rule Technical Support Document, available in the docket for this action.

<sup>55</sup> The "Nationwide BART" scenario reflected implementation of presumptive source-specific BART for both SO<sub>2</sub> and NO<sub>x</sub> at BART-eligible EGUs nationwide. The "CSAPR+BART-elsewhere" reflected implementation of CSAPR in covered states and presumptive source-specific BART for each pollutant in states where CSAPR did not apply for that pollutant.

<sup>56</sup> CSAPR was amended three times in 2011 and 2012 to add five states to the seasonal NO<sub>x</sub> program and to increase certain state budgets. 76 FR 80760 (Dec. 27, 2011); 77 FR 10324 (Feb. 21, 2012); 77 FR 34830 (June 12, 2012). The "CSAPR-better-than-BART" final rule reflected consideration of these changes to CSAPR.

<sup>47</sup> Environ Report—"Final Report Screening Analysis of Potential BART-Eligible Sources in Texas", September 27, 2006; "Addendum 1—BART Exemption Screening Analysis", Draft December 6, 2006; and "BARTmodelingparameters V2.csv".

<sup>48</sup> This is calculated by using the maximum daily PM<sub>10</sub> daily emission rate, adding the maximum daily PM<sub>2.5</sub> emission rate and then calculating the total emissions in tons per year if this max daily rate happened every day.

<sup>49</sup> See 'Coletto\_Creek\_Screen\_analysis.xls'.

<sup>50</sup> See 79 FR 74817, 74848 (Dec. 16, 2014). Docket number EPA-R06-OAR-2014-0754.

<sup>51</sup> 40 CFR 51.308(e)(4); see also generally 77 FR 33641 (June 7, 2012). The D.C. Circuit recently denied a challenge to petition seeking review of the 2012 amendments. *Utility Air Regulatory Group v. EPA*, 885 F.3d 714 (D.C. Cir. 2018).

<sup>52</sup> See Technical Support Document for Demonstration of the Transport Rule as a BART Alternative, Docket ID No. EPA-HQ-OAR-2011-0729-0014 (December 2011) (2011 CSAPR/BART Technical Support Document), and memo entitled "Sensitivity Analysis Accounting for Increases in Texas and Georgia Transport Rule State Emissions Budgets," Docket ID No. EPA-HQ-OAR-2011-0729-0323 (May 29, 2012), both available in the docket for this action.

in some cases, exceed the state's emission budget, but aggregate emissions from all sources in a state are expected to remain lower than or equal to the state's "assurance level" given the incentives that source owners have under the program to achieve that result. The final emission budget under CSAPR for Texas was 294,471 tons per year for SO<sub>2</sub>, including 14,430 tons of allowances available in the new unit set aside.<sup>57</sup> The State's "assurance level" under CSAPR was 347,476 tons.<sup>58</sup> Under CSAPR, the projected SO<sub>2</sub> emissions from the affected Texas EGUs in the "CSAPR + BART-elsewhere" scenario were 266,600 tons per year. In a 2012 sensitivity analysis memo, EPA conducted a sensitivity analysis that confirmed that CSAPR would remain better-than-BART even if Texas EGU emissions increased to approximately 317,100 tons.<sup>59</sup>

As discussed in Section I.D, in the EPA's final response in September 2017 to the D.C. Circuit's remand in *EME Homer City II* of certain CSAPR budgets, we finalized the withdrawal of the requirements for Texas' EGUs to participate in the annual SO<sub>2</sub> and NO<sub>x</sub> trading programs and also finalized our determination that the changes to the

geographic scope of the CSAPR trading programs resulting from the remand response do not affect the continued validity of participation in CSAPR as a BART alternative.<sup>60</sup> This determination that CSAPR remains a viable BART alternative despite changes in geographic scope resulting from EPA's response to the CSAPR remand was based on a sensitivity analysis of the 2012 analytic demonstration used to support the original CSAPR as better-than-BART rulemaking. A full explanation of the sensitivity analysis is included in the remand response proposal and final rule.<sup>61</sup>

#### B. Texas SO<sub>2</sub> Trading Program

Texas is no longer in the CSAPR program for annual SO<sub>2</sub> emissions and accordingly cannot rely on CSAPR as a BART alternative for SO<sub>2</sub> under 51.308(e)(4).<sup>62</sup> Therefore, informed by the TCEQ's comments on our January 2017 proposal, in our October 2017 final action we addressed the SO<sub>2</sub> BART requirement for coal-fired, some gas-fired, and some gas/fuel oil-fired units under a BART alternative, which we developed to meet the demonstration requirements under 51.308(e)(2). Today we propose to affirm the demonstration in our October 2017 action and to retain the SO<sub>2</sub> BART alternative for coal-fired, some gas-fired, and some gas/fuel-oil fired units. We are soliciting comment on these issues, and in particular, we are soliciting comments on the proposal to affirm our determinations that the BART alternative meets each of the applicable regulatory requirements, as detailed in this section.

#### 1. Identification of Sources Participating in the Trading Program

Under 51.308(e)(2), a State may opt to implement or require participation in an emissions trading program or other alternative measure rather than to require sources subject to BART to

install, operate, and maintain BART. Such an emissions trading program or other alternative measure must achieve greater reasonable progress than would be achieved through the installation and operation of BART. At the same time, the Texas trading program should be designed so as not to interfere with the validity of existing SIPs in other states that have relied on reductions from sources in Texas. As discussed elsewhere, the Texas trading program is designed to provide the measures that are needed to address interstate visibility transport requirements for several NAAQS and to be part of the long-term strategy needed to meet the reasonable progress requirements of the Regional Haze Rule.<sup>63</sup> To meet all of these goals, the trading program must not only be inclusive of all BART-eligible sources that are treated as satisfying the BART requirements through participation in a BART alternative, but must also include additional emission sources to the extent required to ensure that the trading program as a whole can be shown to both achieve greater reasonable progress than would be achieved through the installation and operation of BART, and achieve the emission reductions assumed by other states in their own regional haze SIPs, and relied upon in establishing their reasonable progress goals for their Class I areas.

In order to identify EGUs in the trading program, we began with the list of BART-eligible EGUs for which we intended to address the BART requirements through a BART alternative. As discussed elsewhere, we determined that several BART-eligible gas-fired and gas/oil-fired EGUs are not subject-to-BART for NO<sub>x</sub>, SO<sub>2</sub>, and PM, and are therefore not included in the trading program. The table below lists those BART-eligible EGUs identified for inclusion in the trading program.

TABLE 2—BART-ELIGIBLE EGUS PARTICIPATING IN THE TRADING PROGRAM

Facility	Unit
Big Brown (Luminant/Vistra) .....	1
Big Brown (Luminant/Vistra) .....	2
Coletto Creek (Dynegy <sup>64</sup> /Vistra)	1
Fayette (LCRA) .....	1
Fayette (LCRA) .....	2
Graham (Luminant) .....	2

<sup>63</sup> EPA is not determining now that this proposal serves to also resolve the EPA's outstanding obligations with respect to reasonable progress that resulted from the Fifth Circuit's remand of our reasonable progress FIP. We intend to take future action to address the Fifth Circuit's remand.

<sup>57</sup> Units that are subject to CSAPR but that do not receive allowance allocations as existing units are eligible for a new unit set aside (NUSA) allowance allocation. NUSA allowance allocations are a batch of emissions allowances that are reserved for new units that are regulated by the CSAPR, but were not included in the final rule allocations. The NUSA allowance allocations are removed from the original pool of regional allowances, and divided up amongst the new units, so as not to exceed the emissions cap set in the CSAPR. Each calendar year, EPA issues three pairs of preliminary and final notices of data availability (NODAs), which are determined and recorded in two "rounds" and are published in the *Federal Register*. In any year, if the NUSA for a given CSAPR state and program does not have enough new unit applicants after completion of the 2nd round to use up all of the set aside allowances, the remaining allowances are allocated to existing CSAPR-affected units.

<sup>58</sup> See 40 CFR 97.710 for state SO<sub>2</sub> Group 2 trading budgets, new unit set-asides, Indian country new unit set-asides, and variability limits.

<sup>59</sup> For the projected annual SO<sub>2</sub> emissions from Texas EGUs, see Technical Support Document for Demonstration of the Transport Rule as a BART Alternative, Docket ID No. EPA-HQ-OAR-2011-0729-0014 (December 2011) (2011 CSAPR/BART Technical Support Document at Table 2-4), available in the docket for this action. at table 2-4. Certain CSAPR budgets were increased after promulgation of the CSAPR final rule (and the increases were addressed in the 2012 CSAPR/BART sensitivity analysis memo. See memo entitled "Sensitivity Analysis Accounting for Increases in Texas and Georgia Transport Rule State Emissions Budgets," Docket ID No. EPA-HQ-OAR-2011-0729-0323 (May 29, 2012), available in the docket for this action. The increase in the Texas SO<sub>2</sub> budget was 50,517 tons which, when added to the Texas SO<sub>2</sub> emissions projected in the CSAPR + BART-elsewhere scenario of 266,600 tons, yields total potential SO<sub>2</sub> emissions from Texas EGUs of approximately 317,100 tons.

<sup>60</sup> In addition to the withdrawal of the FIP provisions for annual emissions of SO<sub>2</sub> and NO<sub>x</sub> for EGUs in Texas, the full set of actions taken to respond to the remand includes the 2016 CSAPR Update withdrawing the remanded seasonal NO<sub>x</sub> budgets for eleven states and establishing new seasonal NO<sub>x</sub> budgets to address a more recent ozone NAAQS for eight of those states, and the actions approving Alabama's, Georgia's, and South Carolina's SIP revisions establishing state CSAPR trading programs for SO<sub>2</sub> and annual NO<sub>x</sub> to replace the corresponding federal CSAPR trading programs.

<sup>61</sup> 81 FR 78954 (Nov. 10, 2016), 82 FR 45481 (Sept. 29, 2017). A petition challenging the EPA's determination regarding the continued validity of participation in CSAPR as a BART alternative is currently being held in abeyance in the D.C. Circuit. Order, *Nat'l Parks Conservation Assn. v. EPA*, No. 17-1253 (D.C. Cir. Apr. 10, 2018).

<sup>62</sup> See 82 FR 45481; see also 40 CFR 52.39(c)(2), 52.2284(c)(1).



TABLE 2—BART-ELIGIBLE EGUS PARTICIPATING IN THE TRADING PROGRAM—Continued

Facility	Unit
Harrington Station (Xcel) .....	061B
Harrington Station (Xcel) .....	062B
J T Deely (CPS Energy) .....	1
J T Deely (CPS Energy) .....	2
Martin Lake (Luminant/Vistra) ..	1
Martin Lake (Luminant/Vistra) ..	2
Martin Lake (Luminant/Vistra) ..	3
Monticello (Luminant/Vistra) .....	1
Monticello (Luminant/Vistra) .....	2
Monticello (Luminant/Vistra) .....	3
Newman (El Paso Electric) .....	2
Newman (El Paso Electric) .....	3
Newman (El Paso Electric) .....	4
O W Sommers (CPS Energy) ..	1
O W Sommers (CPS Energy) ..	2
Stryker Creek (Luminant/Vistra)	ST2
WA Parish (NRG) .....	WAP4
WA Parish (NRG) .....	WAP5
WA Parish (NRG) .....	WAP6
Welsh Power Plant (AEP) .....	1
Welsh Power Plant (AEP) .....	2
Wilkes Power Plant (AEP) .....	1
Wilkes Power Plant (AEP) .....	2
Wilkes Power Plant (AEP) .....	3

For a BART alternative that includes an emissions trading program, the applicability provisions must be designed to prevent any significant potential shifting within the state of production and emissions from sources in the program to sources outside the program.<sup>65</sup> Shifting would be logistically simplest among units in the same facility, because they are under common management and have access to the same transmission lines. In addition, since a coal-fired EGU to which electricity production could shift would have a relatively high SO<sub>2</sub> emission rate (compared to a gas-fired EGU), such shifting could also shift substantial amounts of SO<sub>2</sub> emissions. To prevent any significant shifting of generation and SO<sub>2</sub> emissions from participating sources to non-participating sources within the same facility, coal-fired EGUs that are not BART-eligible but are co-located with BART-eligible EGUs have been included in the program, with the following exceptions. While Fayette Unit 3, WA Parish Unit 8 (WAP8), and J K Spruce Units 1 and 2 were identified as coal-fired units that are not BART-eligible but are co-located with BART-eligible EGUs, these units have scrubbers installed to control SO<sub>2</sub> emissions such that a shift in generation from the

participating units to these units would not result in a significant increase in emissions. Fayette Unit 3 has a high performing scrubber similar to the scrubbers on Fayette Units 1 and 2,<sup>66</sup> and has a demonstrated ability to maintain SO<sub>2</sub> emissions at or below 0.04 lbs/MMBtu.<sup>67</sup> Any shifting of generation from the participating units at the facility to Fayette Unit 3 would result in an insignificant shift of emissions. The scrubber at Parish Unit 8 maintains an emission rate four to five times lower than the emission rate of the other coal-fired units at the facility (Parish Units 5, 6, and 7) that are uncontrolled.<sup>68</sup> Shifting of generation from the participating units at the Parish facility to Parish Unit 8 would result in a decrease in overall emissions from the source. Similarly, J K Spruce Units 1 and 2 have high performing scrubbers and emit at emission rates much lower than the co-located BART-eligible coal-fired units (J T Deely Units 1 and 2).<sup>69</sup> In addition, because these units not covered by the program are on average better controlled for SO<sub>2</sub> than the covered sources and emit far less SO<sub>2</sub> per unit of energy produced, we conclude that in general, based on the current emission rates of the EGUs, should a portion of electricity generation shift to those units not covered by the program, the net result would be a decrease in overall SO<sub>2</sub> emissions, as these non-participating units are on average much better controlled. Relative to current emission levels, should participating units increase their emissions rates and decrease generation to comply with their allocation, emissions from non-participating units may see a small increase. Therefore, we have not included Fayette Unit 3, WA Parish Unit 8 (WAP8), and J K Spruce Units 1 and 2 in the trading program. The table below lists those coal-fired units that are co-located with BART-eligible units that have been identified for inclusion in the trading program.

<sup>66</sup> See the BART FIP TSD, available in the docket for this action (Document Id: EPA-R06-OAR-2016-0611-0004), for evaluation of the performance of scrubbers on Fayette Units 1 and 2.

<sup>67</sup> The annual average emission rate for 2016 for this unit was 0.01 lb/MMBtu.

<sup>68</sup> Parish Units 5 and 6 are coal-fired BART-eligible units. Parish Unit 7 is not BART-eligible, but is a co-located coal-fired EGU. Unlike Parish Unit 8, these three units do not have an SO<sub>2</sub> scrubber installed.

<sup>69</sup> The annual average emission rate for 2016 for J K Spruce Units 1 and 2 was 0.03 lb/MMBtu and 0.01 lb/MMBtu, respectively. The annual average emission rate for 2016 for J T Deely Units 1 and 2 was 0.52 lb/MMBtu and 0.51 lb/MMBtu, respectively.

TABLE 3—COAL-FIRED EGUS CO-LOCATED WITH BART-ELIGIBLE EGUS AND PARTICIPATING IN THE TRADING PROGRAM

Facility	Unit
Harrington Station (Xcel) .....	063B
WA Parish (NRG) .....	WAP7
Welsh Power Plant (AEP) .....	3

In addition to these sources, we also evaluated other EGUs for inclusion in the trading program based on their potential to impact visibility at Class I areas. Addressing emissions from sources with the largest potential to impact visibility is required to make progress towards the goal of natural visibility conditions and to address emissions that may otherwise interfere with measures required to protect visibility in other states. EPA, states, and Regional Planning Organizations (RPOs) have historically used a Q/D analysis to identify those facilities that have the potential to impact visibility at a Class I area based on their emissions and distance to the Class I area. Where,

1. Q is the annual emissions in tons per year (tpy), and
2. D is the nearest distance to a Class I Area in kilometers (km),

We used a Q/D value of 10 as a threshold for identification of facilities that may impact visibility at Class I areas and could be included in the trading program in order to meet the goals of achieving greater reasonable progress than BART and limiting visibility transport. We selected this value of 10 based on guidance contained in the BART Guidelines, which states:

Based on our analyses, we believe that a State that has established 0.5 deciviews as a contribution threshold could reasonably exempt from the BART review process sources that emit less than 500 tpy of NO<sub>x</sub> or SO<sub>2</sub> (or combined NO<sub>x</sub> and SO<sub>2</sub>), as long as these sources are located more than 50 kilometers from any Class I area; and sources that emit less than 1000 tpy of NO<sub>x</sub> or SO<sub>2</sub> (or combined NO<sub>x</sub> and SO<sub>2</sub>) that are located more than 100 kilometers from any Class I area.<sup>70</sup>

The approach described above corresponds to a Q/D threshold of 10. This approach has also been recommended by the Federal Land Managers' Air Quality Related Values Work Group (FLAG)<sup>71</sup> as an initial

<sup>70</sup> See 40 CFR part 51, App. Y, § III (How to Identify Sources "Subject to BART").

<sup>71</sup> Federal Land Managers' Air Quality Related Values Work Group (FLAG), Phase I Report—Revised (2010).

Natural Resource Report NPS/NRPC/NRR—2010/232, October 2010. Available at <http://>

<sup>65</sup> Dynegy purchased the Coletto Creek power plant from Engie in February 2017. Note that Coletto Creek may still be listed as being owned by Engie in some of our supporting documentation which was prepared before that sale.

<sup>66</sup> 40 CFR 51.308(e)(2)(vi)(A).

screening test to evaluate the potential impact of a new or modified source on air quality related values (AQRV) at a Class I area and screen out sources from further visibility analysis. For this purpose, a Q/D value is calculated using the combined annual emissions in tons per year of SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>, and sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) divided by the distance to the Class I area in km.

A Q/D value greater than 10 for a new or modified major source seeking a permit under the Prevention of Significant Deterioration Program or Nonattainment New Source Review Program is recommended to have a Class I area AQRV analysis conducted.<sup>72</sup>

We considered the results of an available Q/D analysis based on 2009 emissions to identify facilities that may impact air visibility at Class I areas.<sup>73</sup> Table 4 summarizes the results of that Q/D analysis for EGU sources in Texas with a Q/D value greater than 10 with respect to the nearest Class I area to the source.

TABLE 4—Q/D ANALYSIS FOR TEXAS EGUS

[Q/D Greater than 10, 2009 annual emissions]

Facility	Maximum Q/D
H.W. Pirkey (AEP) .....	35.8
Big Brown (Luminant) .....	182.9
Sommers-Deely (CPS) .....	56.9
Coletto Creek (Dynegy) .....	46.0
Fayette (LCRA) .....	61.0
Gibbons Creek (TMPA) .....	30.8
Harrington Station (Xcel) .....	107.8
San Miguel .....	32.9
Limestone (NRG) .....	85.1
Martin Lake (Luminant) .....	367.4
Monticello (Luminant) .....	425.4
Oklunion (AEP) .....	85.0
Sandow (Luminant) .....	63.0
Tolk Station (Xcel) .....	148.5
Twin Oaks .....	14.2
WA Parish (NRG) .....	84.3
Welsh (AEP) .....	230.1

Based on the above Q/D analysis, we identified additional coal-fired EGUs for participation in the SO<sub>2</sub> trading program due to their emissions, proximity to Class I areas, and potential to impact visibility at Class I areas. While Gibbons Creek is identified by the Q/D analysis, the facility does not include any BART-

eligible EGUs and has installed very stringent controls such that current emissions are approximately 1% of what they were in 2009.<sup>74</sup> Therefore, we do not consider Gibbons Creek to have significant potential to impact visibility at any Class I area and do not include it in the trading program. The Twin Oaks facility, consisting of two units, is also identified as having a Q/D greater than 10. However, the Q/D for this facility is significantly lower than that of the other facilities, the facility does not include any BART-eligible EGUs, and the estimated Q/D for an individual unit would be less than 10. We do not consider the potential visibility impacts from these units to be significant relative to the other coal-fired EGUs in Texas with Q/Ds much greater than 10 and do not include it in the trading program. The Oklaunion facility consists of one coal-fired unit that is not BART-eligible. Annual emissions of SO<sub>2</sub> in 2016 from this source were 1,530 tons, less than 1% of the total annual emissions for EGUs in the state and only 988 tons in 2017. The most recent emissions from this facility are small relative to other non-BART units included in the program and we have not included Oklaunion in the trading program. Finally, San Miguel is identified as having a Q/D greater than 10. The San Miguel facility consists of one coal-fired unit that is not BART-eligible. In our review of existing controls at the facility performed as part of our action to address the remaining regional haze obligations for Texas, we found that the San Miguel facility has upgraded its SO<sub>2</sub> scrubber system to perform at the highest level (94% control efficiency) that can reasonably be expected based on the extremely high sulfur content of the coal being burned, and the technology currently available.<sup>75</sup> Since completion of all scrubber upgrades,<sup>76</sup> emissions from the facility on a 30-day boiler operating day<sup>77</sup> rolling average basis have remained below 0.6 lb/MMBtu and the 2016 annual average emission rate was 0.44 lb/MMBtu. Therefore, we found the facility is well controlled and did not

<sup>74</sup> Gibbons Creek's 2016 annual SO<sub>2</sub> emissions were only 138 tons compared to 11,931 tons in 2009.

<sup>75</sup> 79 FR 74818 (Dec. 16, 2014).

<sup>76</sup> San Miguel Electric Cooperative FGD Upgrade Program Update, URS Corporation, June 30, 2014. Available in the docket for our December 2014 Proposed action, 79 FR 74818 (Dec 16, 2014) as "TX166-008-066 San Miguel FGD Upgrade Program."

<sup>77</sup> A boiler operating day (BOD) is any 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time at the steam generating unit. See 70 FR 39172 (July 6, 2005).

include San Miguel in the trading program. Other coal-fired EGUs in Texas that are not included in the trading program either had Q/D values less than 10 based on 2009 emissions or were not yet operating in 2009. New units beginning operation after 2009 have been or would be permitted and constructed using emission control technology determined under either Best Available Control Technology (BACT) or Lowest Achievable Emission Rate (LAER) review, as applicable, and we do not consider the potential visibility impacts from these units to be significant relative to those coal-fired EGUs participating in the program. See Table 8 and accompanying discussion in the section below for additional information on coal-fired EGUs not included in the trading program. The table below lists the additional units identified by the Q/D analysis described above as potentially significantly impacting visibility that are included in the trading program. We note that all of the other coal-fired units identified for inclusion in the trading program due to their BART-eligibility or by the fact that they are co-located with BART-eligible coal units would also be identified for inclusion in the trading program if the Q/D analysis were applied to them.

TABLE 5—ADDITIONAL UNITS IDENTIFIED FOR INCLUSION IN THE TRADING PROGRAM

Facility	Unit
H.W. Pirkey (AEP) .....	1
Limestone (NRG) .....	1
Limestone (NRG) .....	2
Sandow (Luminant) .....	4
Tolk (Xcel) .....	171B
Tolk (Xcel) .....	172B

EPA proposes to affirm our determination that the inclusion of all of these identified sources (Tables 2, 3, and 5) in an intrastate SO<sub>2</sub> trading program will both: (1) Achieve emission levels that are similar to those projected in the 2012 "CSAPR better than BART" determination from original projected participation by all Texas EGUs in the CSAPR program for trading of SO<sub>2</sub>; and (2) achieve greater reasonable progress than BART. In addition to being a sufficient alternative to BART, the trading program secures reductions consistent with visibility transport requirements and is part of the long-term strategy to meet the reasonable progress requirements of the Regional Haze Rule.<sup>78</sup> The combination of the

<sup>78</sup> EPA is not determining at this time that this final action fully resolves the EPA's outstanding

Continued

[www.nature.nps.gov/air/Pubs/pdf/flag/FLAG\\_2010.pdf](http://www.nature.nps.gov/air/Pubs/pdf/flag/FLAG_2010.pdf).

<sup>72</sup> We also note that TCEQ utilized a Q/D threshold of 5 in its analysis of reasonable progress sources in the 2009 Texas Regional Haze SIP. See Appendix 10-1 of the 2009 Texas Regional Haze SIP.

<sup>73</sup> See the TX RH FIP TSD that accompanied our December 2014 proposal to address Reasonable Progress requirements 79 FR 74818 (Dec 16, 2014) ; and 2009statesum\_Q\_D.xlsx, available in the docket for that action.



source coverage for this program, the total allocations for EGUs covered by the program, and recent and foreseeable emissions from EGUs not covered by the program will result in future EGU emissions in Texas that on average will be no greater than what was forecast in the 2012 “CSAPR better than BART” demonstration for Texas EGU emissions which assumed CSAPR participation by Texas. EPA requests comment on our proposal to affirm the identification of sources participating in the trading program in the October 2017 final rule.

## 2. Texas SO<sub>2</sub> Trading Program as a BART Alternative

40 CFR 51.308(e)(2) contains the required plan elements and analyses for an emissions trading program or alternative measure designed as a BART alternative.

In our October 2017 final action, we finalized our list of all BART-eligible sources in Texas, which serves to satisfy 51.308(e)(2)(i)(A). We are not reopening the identification of BART-eligible sources, and thus are not requesting comment on this element.

This proposal includes a list of all EGUs covered by the trading program, satisfying the first requirement of 51.308(e)(2)(i)(B). All BART-eligible coal-fired units, some additional coal-fired EGUs, and some BART-eligible gas-fired and oil-and-gas-fired units are covered by the alternative program.<sup>79</sup> This coverage and our determinations that the BART-eligible gas-fired and oil-and-gas-fired EGUs not covered by the program are not subject-to-BART for NO<sub>x</sub>, SO<sub>2</sub> and PM satisfy the second requirement of 51.308(e)(2)(i)(B).<sup>80</sup>

Regarding the requirements of 40 CFR 51.308(e)(2)(i)(C), we are proposing to affirm our determination that it is not necessary to make determinations of BART for each source subject to BART and covered by the program. Under that provision, the demonstration for a BART alternative does not need to include determinations of BART for each source subject to BART and covered by the program when the “alternative measure has been designed to meet a requirement other than BART.” The Texas trading program meets this condition, as discussed elsewhere, because it has been designed

obligations with respect to reasonable progress that resulted from the Fifth Circuit’s remand of our reasonable progress FIP. We intend to take future action to address the Fifth Circuit’s remand.

<sup>79</sup> See Table 3 above for list of participating units and identification of BART-eligible participating units.

<sup>80</sup> EPA’s determination that these EGU units not covered by the program are not subject to BART is final and we are not reopening that determination here.

to meet multiple requirements other than BART. This BART alternative extends beyond all BART-eligible coal-fired units to include a number of additional coal-fired EGUs, and some BART-eligible gas-fired and oil-and-gas-fired units, capturing the majority of emissions from EGUs in the State, and is designed to provide the measures that are needed to address interstate visibility transport requirements for several NAAQS. This is because for all sources covered by the Texas SO<sub>2</sub> trading program, those sources’ CSAPR allocations for SO<sub>2</sub> are incorporated into the BART alternative, and the BART FIP obtains more emission reductions of SO<sub>2</sub> and NO<sub>x</sub> than the level of emissions reductions relied upon by other states during consultation and assumed by other states in their own regional haze SIPs, including their reasonable progress goals for their Class I areas. This BART alternative, addressing emissions from both BART eligible and non-BART eligible sources, that in combination provides for greater reasonable progress than BART, is also designed to be part of the long-term strategy needed to meet the reasonable progress requirements of the Regional Haze Rule, which remain outstanding after the remand of our reasonable progress FIP by the Fifth Circuit Court of Appeals. In our January 4, 2017 proposal on BART, we noted that the Fifth Circuit Court of Appeals has remanded without vacatur our prior action on the Texas’ 2009 Texas Regional Haze SIP and part of the Oklahoma Regional Haze SIP.<sup>81</sup> We contemplate that future action on this remand, will bring closure to the reasonable progress requirement. For these reasons, we find that it is not necessary for us to make determinations of BART for each source subject to BART and covered by the program. In this context, 51.308(e)(2)(i)(C) provides that we may “determine the best system of continuous emission control technology and associated emission reductions for similar types of sources within a source category based on both source-specific and category-wide information, as appropriate.” In this action, we are relying on the determinations of the best system of continuous emission control technology and associated emission reductions for EGUs as was used in our 2012 determination that showed that CSAPR as finalized and amended in 2011 and 2012 achieves more reasonable progress than BART (“CSAPR better than BART”). These determinations were

based largely on category-wide information.

Regarding the requirement of 40 CFR 51.308(e)(2)(i)(D), our analysis is that the Texas trading program will effectively limit the aggregate annual SO<sub>2</sub> emissions of the covered EGUs to be no higher than the sum of their allowances. The Texas SO<sub>2</sub> Trading Program is an intrastate cap-and-trade program for listed covered sources in the State of Texas modeled after the EPA’s CSAPR SO<sub>2</sub> Group 2 Trading Program. Authorizations to emit SO<sub>2</sub>, known as allowances, are allocated to affected units. As discussed elsewhere, the program includes a Supplemental Allowance Pool with additional allowances that may be allocated to subject units and sources to provide compliance assistance. The average total annual allowance allocation for all covered sources is 238,393 tons, with an additional 10,000 tons allocated to the Supplemental Allowance pool. In addition, while the Supplemental Allowance pool may grow over time as unused supplemental allowances remain available and allocations from retired units are placed in the supplemental pool, the total number of allowances that can be allocated to sources in a control period from the supplemental pool is limited to a maximum 54,711 tons plus the amount of any allowances placed in the pool that year from retired units and corrections. Therefore, annual average emissions for the covered sources will be less than or equal to 248,393 tons, and although there will be some with year-to-year variability, that variability will be constrained by the number of banked allowances and number of allowances that can be allocated in a control period from the supplemental pool. The projected SO<sub>2</sub> emission reduction that will be achieved by the program, relative to any selected historical baseline year, is therefore the difference between the aggregate historical baseline emissions of the covered units and the average total annual allocation. For example, the aggregate 2014 SO<sub>2</sub> emissions of the covered EGUs were 309,296 tons per year, while the average total annual allocation for the covered EGUs is 248,393 tons/year.<sup>82</sup> Therefore, compared to 2014 emissions, the Texas trading program is projected to achieve an average reduction of approximately

<sup>82</sup> Texas sources were subject to the CSAPR SO<sub>2</sub> trading program in 2015 and 2016 but are no longer subject to that program. We therefore select 2014 as the appropriate most recent year for this comparison.

<sup>81</sup> *Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016).



60,903 tons per year.<sup>83</sup> We note that the trading program allows additional sources to opt-in to the program. Should sources choose to opt-in in the future, the average total annual allocation could increase, up to a maximum of 289,740 tons. For comparison, the aggregate 2014 SO<sub>2</sub> emissions of the covered EGUs including all potential opt-ins were 343,425 tons per year. Therefore, compared to 2014 emissions, the Texas trading program including all potential opt-ins is projected to achieve an average reduction of approximately 53,685 tons per year.

Regarding the requirement of 40 CFR 51.308(e)(2)(i)(E), the BART alternative EPA is proposing to affirm here is supported by our determination that, the clear weight of the evidence is that in the context of the operation of the CSAPR ozone-season NO<sub>x</sub> trading program and the operation of CSAPR annual NO<sub>x</sub> and SO<sub>2</sub> trading programs, the Texas trading program achieves greater reasonable progress than would be achieved through the installation and operation of BART at the covered sources.<sup>84</sup> The 2012 demonstration showed that CSAPR as finalized and amended in 2011 and 2012 meets the Regional Haze Rule's criteria for a demonstration of greater reasonable progress than BART. This 2012 demonstration is the primary evidence that the Texas trading program achieves greater reasonable progress than BART. However, the states participating in CSAPR are now slightly different than

the geographic scope of CSAPR assumed in the 2012 analytic demonstration. In September 2017, we determined that the changes resulting from EPA's responses to the D.C. Circuit's remand in *EME Homer City II* to the emissions budgets and emissions distributions in states participating in CSAPR trading programs had no adverse impact on the 2012 determination that CSAPR participation remains better-than-BART.<sup>85</sup> Regarding SO<sub>2</sub> emissions from Texas, as detailed below, the BART alternative is projected to accomplish emission levels from Texas EGUs that are similar to the emission levels from Texas EGUs that would have been realized from participation in the SO<sub>2</sub> trading program under CSAPR. The changes to the geographic scope of the NO<sub>x</sub> CSAPR programs combined with the expectation that the Texas trading program will reduce the SO<sub>2</sub> emissions of EGUs in Texas to levels similar to CSAPR-participation levels, despite slight differences in EGU participation between the two SO<sub>2</sub> programs, lead to the proposed finding here that, in the context of the operation of the CSAPR ozone-season NO<sub>x</sub> trading program and the operation of CSAPR annual NO<sub>x</sub> and SO<sub>2</sub> trading programs, the Texas BART alternative program is better-than-BART.

The differences in Texas EGU participation in CSAPR and this BART alternative are either not significant or, in some cases, work to demonstrate the relative stringency of the BART

alternative as compared to CSAPR. If Texas EGUs were still required to participate in CSAPR's SO<sub>2</sub> trading program, a determination that CSAPR is an acceptable BART alternative for Texas EGUs would be plainly consistent with EPA's previous findings and regulations. The Texas trading program will result in average annual emissions from the covered EGUs and other EGUs in Texas that are no higher than if Texas EGUs were still required to participate in CSAPR's SO<sub>2</sub> trading program, and thus the clear weight of evidence is that, overall, the Texas trading program in conjunction with CSAPR will provide more reasonable progress than BART. We have considered the question of whether, in applying this portion of the Regional Haze Rule, we should take as the baseline the application of source-specific BART at the covered sources. We are proposing to interpret the rule to not require that approach in this situation, given that 51.308(e)(2)(i)(C) provides for an exception (which we are exercising) to the requirement for source-specific BART determinations for the covered sources. As discussed previously, we are not making any source-specific BART determinations in this action, nor did Texas do so in its 2009 Regional Haze SIP submission.

Table 6 identifies the participating units and their proposed unit-level allocations under the Texas SO<sub>2</sub> trading program. These allocations are the same as under CSAPR.

TABLE 6—ALLOCATIONS FOR TEXAS EGUS SUBJECT TO THE FIP SO<sub>2</sub> TRADING PROGRAM

Owner/operator	Units	Allocations (tpy)
AEP .....	Welsh Power Plant Unit 1 .....	6,496
	Welsh Power Plant Unit 2 .....	7,050
	Welsh Power Plant Unit 3 .....	7,208
	H W Pirkey Power Plant Unit 1 .....	8,882
	Wilkes Unit 1 .....	14
	Wilkes Unit 2 .....	2
	Wilkes Unit 3 .....	3
CPS Energy .....	JT Deely Unit 1 .....	6,170
	JT Deely Unit 2 .....	6,082
	Sommers Unit 1 .....	55
	Sommers Unit 2 .....	7
Dynegy/Vistra .....	Coletto Creek Unit 1 .....	9,057
El Paso Electric .....	Newman Unit 2 .....	1
	Newman Unit 3 .....	1
	Newman Unit 4 .....	2
	Fayette/Sam Seymour Unit 1 .....	7,979
LCRA .....	Fayette/Sam Seymour Unit 2 .....	8,019
	Big Brown Unit 1 .....	8,473
Luminant/Vistra .....	Big Brown Unit 2 .....	8,559
	Martin Lake Unit 1 .....	12,024

<sup>83</sup> We note that for other types of alternative programs that might be adopted under 40 CFR 51.308(e)(2), the analysis of achievable emission reductions could be more complicated. For example, a program that involved economic incentives instead of allowances or that involved

interstate allowance trading would present a more complex situation in which achievable emission reductions could not be calculated simply by comparing aggregate baseline emissions to aggregate allowances.

<sup>84</sup> EPA's determination that Texas' participation in CSAPR for ozone-season NO<sub>x</sub> satisfies NO<sub>x</sub> BART for EGUs is final and we are not reopening that determination here.

<sup>85</sup> 82 FR 45481 (Sept. 29, 2017).

TABLE 6—ALLOCATIONS FOR TEXAS EGUS SUBJECT TO THE FIP SO<sub>2</sub> TRADING PROGRAM—Continued

Owner/operator	Units	Allocations (tpy)
	Martin Lake Unit 2 .....	11,580
	Martin Lake Unit 3 .....	12,236
	Monticello Unit 1 .....	8,598
	Monticello Unit 2 .....	8,795
	Monticello Unit 3 .....	12,216
	Sandow Unit 4 .....	8,370
	Stryker ST2 .....	145
	Graham Unit 2 .....	226
NRG .....	Limestone Unit 1 .....	12,081
	Limestone Unit 2 .....	12,293
	WA Parish Unit WAP4 .....	3
	WA Parish Unit WAP5 .....	9,580
	WA Parish Unit WAP6 .....	8,900
	WA Parish Unit WAP7 .....	7,653
Xcel .....	Tolk Station Unit 171B .....	6,900
	Tolk Station Unit 172B .....	7,062
	Harrington Unit 061B .....	5,361
	Harrington Unit 062B .....	5,255
	Harrington Unit 063B .....	5,055
Total .....		238,393

The total annual allocation for all sources in the Texas SO<sub>2</sub> trading program is 238,393 tons. In addition, a Supplemental Allowance pool initially holds an additional 10,000 tons for a maximum total annual allocation of 248,393 tons. The Administrator may allocate a limited number of additional allowances from this pool to sources whose emissions exceed their annual

allocation, pursuant to the provisions in the FIP.<sup>86</sup> Under CSAPR, the total allocations for all existing EGUs in Texas is 279,740 tons, for a total of 294,471 tons including the state new-unit set aside of 14,430 tons and the Indian country new-unit set aside.<sup>87</sup> As shown in Table 7, the coverage of the Texas SO<sub>2</sub> trading program represents 81% of the total CSAPR allocation for

Texas and 85% of the CSAPR allocations for existing units. The Supplemental Allowance pool contains an additional 10,000 tons, compared to the new unit set aside (NUSA) allowance allocation under CSAPR of 14,430 tons. Examining 2016 emissions, the EGUs covered by the program represent 89% of total Texas EGU emissions.

TABLE 7—COMPARISON OF TEXAS SO<sub>2</sub> TRADING PROGRAM ALLOCATIONS TO PREVIOUSLY APPLICABLE CSAPR ALLOCATIONS AND TO 2016 EMISSIONS

	Annual allocations in the Texas trading program (tons per year)	% of total previously applicable CSAPR allocations (294,471 tons per year)	2016 Emissions (tons per year)	2017 Emissions (tons per year)
Texas SO <sub>2</sub> Trading program sources .....	238,393 .....	81	218,291	245,870
Total EGU emissions .....			245,737	275,965
Supplemental Allowance pool .....	10,000 .....	3.4		
Existing Sources not covered by trading program .....	No allocation .....	16	27,446	30,096

The remaining 11% of the total 2016 or 2017 emissions due to sources not covered by the program come from coal-fired units that on average are better controlled for SO<sub>2</sub> than the covered sources (26,795 tons in 2016; 29,514 tons in 2017) and gas units that rarely burn fuel oil (651 tons in 2016; 582 tons in 2017). The table below lists these coal-fired units. We note that Sandow

5A and 5B were shut down in early 2018.<sup>88</sup> The aggregate annual emission rate in 2016 and 2017 was 0.50 lb/MMBTU for the coal-fired units participating in the trading program compared to 0.12 lb/MMBTU for the coal-fired units not covered by the program.<sup>89</sup> Therefore, we expect that in general, based on the current emission rates of the EGUs, should a portion of

electricity generation shift to units not covered by the program, the net result would be a decrease in overall SO<sub>2</sub> emissions, as these non-participating units are on average much better controlled and emit far less SO<sub>2</sub> per unit of energy produced.

<sup>86</sup> See 40 CFR 97.912.

<sup>87</sup> An Indian Country new unit set-aside is established for each state under the CSAPR that provides allowances for future new units locating

in Indian Country. The Indian Country new unit set-aside for Texas is 294 tons. See 40 CFR 97.710.

<sup>88</sup> See letter dated February 14, 2018 from Kim Mireles of Luminant to the TCEQ requesting to cancel certain air permits and registrations for

Sandow 5 Units 5A and 5B available in the docket for this action.

<sup>89</sup> See “Texas EGUs 2016 and 2017 annual emissions.xlsx” available in the docket for this action.

TABLE 8—COAL-FIRED EGUS NOT COVERED BY THE TEXAS SO<sub>2</sub> TRADING PROGRAM

	Previously applicable CSAPR allocation (tons)	2016 Emissions (tons)	2016 Annual average emission rate (lb/MMBtu)
Fayette/Sam Seymour Unit 3 .....	2,955	231	0.01
Gibbons Creek Unit 1 .....	6,314	138	0.02
JK Spruce Unit 1 .....	4,133	467	0.03
JK Spruce Unit 2 .....	158	151	0.01
Oak Grove Unit 1 .....	1,665	3,334	0.11
Oak Grove Unit 2* .....	N/A	3,727	0.12
Oklunion Unit 1 .....	4,386	1,530	0.11
San Miguel Unit 1 .....	6,271	6,815	0.44
Sandow Station Unit 5A .....	773	1,117	0.11
Sandow Station Unit 5B .....	725	1,146	0.10
Sandy Creek Unit 1* .....	N/A	1,842	0.09
Twin Oaks Unit 1 .....	2,326	1,712	0.21
Twin Oaks Unit 2 .....	2,270	1,475	0.23
WA Parish Unit WAP8 .....	4,071	3,112	0.16
Total .....	36,047	26,795	.....

\* Oak Grove Unit 2 and Sandy Creek Unit 1 received allocations from the new unit set aside under the CSAPR program.

The exclusion of a large number of gas-fired units that rarely burn fuel oil further limits allowances in the program as compared to CSAPR because CSAPR allocated these units allowances that are higher than their recent and current emissions. In 2016, these units emitted 651 tons of SO<sub>2</sub>, but received allowances for over 5,000 tons. By excluding these sources from the program, those unused allowances are not available for purchase by other EGUs. We note the trading program does allow non-participating sources that previously had CSAPR allocations to opt-in to the trading program and receive allocations equivalent to their CSAPR allocation. Should some sources choose to opt-in to the program, the total number of allowances will increase by the collective amount of the allowances they receive. This will serve to increase the percentage of CSAPR allowances represented by the Texas SO<sub>2</sub> trading program and increase the portion of emissions covered by the program, with the result that the Texas program will more closely resemble the CSAPR program as it would have applied to Texas.

Finally, the Texas SO<sub>2</sub> trading program does not allow EGUs to purchase allowances from sources in other states. Under CSAPR, Texas EGUs were allowed to purchase allowances from other Group 2 states, a fact which could, and was projected in CSAPR modeling to, result in an increase in annual allowances used in the State above its budget. CSAPR also included a variability limit that was set at 18% of the State budget and an assurance level equal to the State's budget plus the variability limit. The assurance level for

Texas was set at 347,476 tons. The CSAPR assurance provisions are triggered if the State's emissions for a year exceed the assurance level. These assurance provisions require some sources to surrender two additional allowances per ton beyond the amount equal to their actual emissions, depending on their emissions and annual allocation level. In effect, under CSAPR, EGUs in Texas could have emitted above the allocation if willing to pay the market price of allowances, and the cost associated with each incremental ton of emissions could triple if in the aggregate they exceeded the assurance level.

The Texas trading program, by contrast, will have 248,393 tons of allowances allocated every year, with no ability to purchase additional allowances from sources outside of the State, preventing an increase beyond that annual allocation.<sup>90</sup> This includes an annual allocation of 10,000 allowances to the Supplemental Allowance pool. The Supplemental Allowance pool may grow over time as unused supplemental allowances remain available and allocations from retired units are placed in the supplemental pool, but the total number of allowances that can be allocated in a control period from in this supplemental pool is limited to a maximum 54,711 tons plus the amount of any allowances placed in the pool

<sup>90</sup> We note the trading program does allow non-participating sources that previously had CSAPR allocations to opt-in to the trading program and receive an allocation equivalent to the CSAPR level allocation. Should some sources choose to opt-in to the program, the total number of allowances will increase by that amount.

that year from retired units and corrections. The 54,711-ton value is equal to 10,000 tons annually allocated to the pool plus 18% of the total annual allocation for participating units, mirroring the variability limit from CSAPR. The total number of allowances that can be allocated in a single year is therefore 293,104, which is the sum of the 238,393 budget for existing units plus 54,711. Annual average emissions for the covered sources will be less than or equal to 248,393 tons with some year to year variability constrained by the number of banked allowances and allowances available to be allocated during a control period from the Supplemental Allowance pool. If additional units opt into the program, additional allowances will be available corresponding to the amounts that those units would have been allocated under CSAPR. The projected SO<sub>2</sub> emissions from the affected Texas EGUs in the CSAPR + BART-elsewhere scenario were 266,600 tons per year. In a 2012 sensitivity analysis memo, EPA conducted a sensitivity analysis that confirmed that CSAPR would remain better-than-BART if Texas EGU emissions increased to approximately 317,100 tons.<sup>91</sup> Under the Texas SO<sub>2</sub>

<sup>91</sup> For the projected annual SO<sub>2</sub> emissions from Texas EGUs, see 2011 CSAPR/BART Technical Support Document, at Table 2–4, available in the docket for this action. Certain CSAPR budgets were increased after promulgation of the CSAPR final rule (and the increases were addressed in the 2012 CSAPR/BART sensitivity analysis memo). See memo titled “Sensitivity Analysis Accounting for Increases in Texas and Georgia Transport Rule State Emissions Budgets,” Docket ID No. EPA–HQ–OAR–2011–0729–0323 (May 29, 2012), available in the docket for this action. The increase in the Texas

Continued



trading program, annual average EGU emissions are anticipated to remain well below 317,100 tons per year as annual allocations for participating units are held at 248,393 tons per year. Sources not covered by the program emitted less than 27,500 tons of SO<sub>2</sub> in 2016 and are not projected to significantly increase from this level. Any new units would be required to be well controlled and, similar to the existing units not covered by the program, they would not significantly increase total emissions of SO<sub>2</sub>. Furthermore, as discussed above, any load shifting to these new non-participating units would be projected to result in a net decrease in emissions per unit of electricity generated and at most a small increase in total SO<sub>2</sub> emissions compared to them not having been brought into operation. We note that total emissions of SO<sub>2</sub> from all EGU sources in Texas in 2016 were 245,737 tons.

We also note that state-wide EGU SO<sub>2</sub> emissions in Texas have decreased considerably since the 2002 baseline period, reflecting market changes and reductions due to requirements such as CAIR/CSAPR. In 2002, Texas EGU emissions were 560,860 tons of SO<sub>2</sub> compared to emissions of 245,737 tons in 2016, a reduction of over 56%. The Texas SO<sub>2</sub> trading program locks in the large majority of these reductions by limiting allocation of allowances to 248,393 tons per year for participating sources. While the Texas program does not include all EGU sources in the State, as discussed above, the EGUs outside of the program contribute relatively little to the total state emissions and these units on average are better controlled for SO<sub>2</sub> than the units subject to the Texas program.

In sum, we propose to affirm and request comment on the determination that the Texas Trading Program will result in SO<sub>2</sub> emissions from Texas EGUs similar to emissions anticipated under CSAPR and thus that the weight of evidence supports the conclusion that the SO<sub>2</sub> Trading Program meets the requirements of a BART alternative. The differences in source coverage are either not significant, or, in some cases, work to demonstrate the relative stringency of the Program compared to CSAPR.

### *C. Specific Texas SO<sub>2</sub> Trading Program Features*

The Texas SO<sub>2</sub> Trading Program is an intrastate cap-and-trade program for listed covered sources in the State of

Texas. The EPA is proposing to affirm our promulgation of the Texas SO<sub>2</sub> Trading Program under 40 CFR 52.2312 and subpart FFFFF of part 97. The State of Texas may choose to remain under the Texas SO<sub>2</sub> Trading Program in our FIP or replace it with an appropriate SIP if it chooses to develop and submit one to EPA and EPA is able to approve it. If the State of Texas is interested in pursuing delegation of the Texas SO<sub>2</sub> Trading Program, the request would need to provide a demonstration of the State's statutory authority to implement any delegated elements.

The Texas SO<sub>2</sub> Trading Program is modeled after the EPA's CSAPR SO<sub>2</sub> Group 2 Trading Program, and we are proposing to affirm that the Program satisfies the requirements of 51.308(e)(2)(vi). Similar to the CSAPR SO<sub>2</sub> Group 2 Trading Program, the Texas SO<sub>2</sub> Trading Program sets an SO<sub>2</sub> emission budget for affected units and sources in the State of Texas. Authorizations to emit SO<sub>2</sub>, known as allowances, are allocated to affected units. The Texas SO<sub>2</sub> Trading Program provides flexibility to affected units and sources by allowing units and sources to determine their own compliance path; this includes adding or operating control technologies, upgrading or improving controls, switching fuels, and using allowances. Sources can buy and sell allowances and bank (save) allowances for future use as long as each source holds enough allowances to account for its emissions of SO<sub>2</sub> by the allowance transfer deadline shortly after the end of the compliance period.

Pursuant to the requirements of 51.308(e)(2)(vi)(A), the applicability of the Texas SO<sub>2</sub> Trading Program is defined in 40 CFR 97.904. Section 97.904(a) identifies the subject units, which include all BART-eligible coal-fired EGUs, additional coal-fired EGUs, and several BART-eligible gas-fired and gas/fuel oil-fired EGUs, all of which were previously covered by the CSAPR SO<sub>2</sub> Group 2 Trading Program. Additionally, pursuant to 40 CFR 97.904(b), the Trading Program provides an opportunity for any other unit in the State of Texas that was subject to the CSAPR SO<sub>2</sub> Group 2 Trading Program to opt-in to the Texas SO<sub>2</sub> Trading Program. We discuss in Section IV.B how the applicability results in coverage of the Texas SO<sub>2</sub> trading program representing 81% of the total CSAPR allocation for Texas and 85% of the CSAPR allocations for existing units, and how potential shifts in generation would result in a reduction of emissions or, at worst, an insignificant increase in emissions. The Texas SO<sub>2</sub> Trading Program establishes the statewide SO<sub>2</sub>

budget for the subject units at 40 CFR 97.910(a). This budget is equal to the sum of the allowances for each subject unit identified under 97.904(a) and 97.911(a). As units opt-in to the Texas SO<sub>2</sub> Trading under 97.904(b), the allowances for each of these units will equal their CSAPR SO<sub>2</sub> Group 2 allowances under 97.911(b). We specifically solicit comment on retention or elimination of the provision that provides opportunity for certain units to opt-in to the Texas SO<sub>2</sub> trading Program.

Additionally, the EPA has established a Supplemental Allowance Pool with a budget of 10,000 tons of SO<sub>2</sub> to provide compliance assistance to subject units and sources. Section 40 CFR 97.912 establishes how allowances are allocated from the Supplemental Allowance Pool to sources (collections of participating units at a facility) that have reported total emissions for that control period exceeding the total amounts of allowances allocated to the participating units at the source for that control period (before any allocation from the Supplemental Allowance Pool). For any control period, the maximum supplemental allocation from the Supplemental Allowance Pool that a source may receive is the amount by which the total emissions reported for its participating units exceed the total allocations to its participating units (before any allocation from the Supplemental Allowance Pool). If the total amount of allowances available for allocation from the Supplemental Allowance Pool for a control period is less than the sum of these maximum allocations, sources will receive less than the maximum supplemental allocation from the Supplemental Allowance Pool, where the amount of supplemental allocations for each source is determined in proportion to the source's respective maximum allocations, with one exception. While all other sources required to participate in the trading program have flexibility to transfer allowances among multiple participating units under the same owner/operator when planning operations, Coletto Creek consists of only one coal-fired unit and, as of the issuance of the October 2017 final action, was the only coal-fired unit in Texas owned and operated by Dynegy. It was conceivable that insufficient incentives would exist to compel Dynegy's competitors in the electric market to make their additional allowances available for purchase by Dynegy. To provide this source additional flexibility, Coletto Creek will be allocated its maximum supplemental

SO<sub>2</sub> budget was 50,517 tons which, when added to the Texas SO<sub>2</sub> emissions projected in the CSAPR + BART-elsewhere scenario of 266,600 tons, yields total potential SO<sub>2</sub> emissions from Texas EGUs of approximately 317,100 tons.

allocation from the Supplemental Allowance Pool as long as there are sufficient allowances in the Supplemental Allowance Pool available for this allocation, and its actual allocation will not be reduced in proportion with any reductions made to the supplemental allocations to other sources. We note that Dynegy and Vistra—which owns other units that are subject to the trading program, some of which have ceased operation and thus will not need to use their allowances—have recently merged, and we specifically solicit comment on whether we should retain or eliminate this additional flexibility for Coletto Creek in light of this recent change in ownership.<sup>92</sup>

Section 97.921 establishes how the Administrator will record the allowances for the Texas SO<sub>2</sub> Trading Program and ensures that the Administrator will not record more allowances than are available under the program consistent with 40 CFR 51.308(e)(2)(vi)(B). The monitoring, recordkeeping, and reporting provisions for the Texas SO<sub>2</sub> Trading Program at 40 CFR 97.930–97.935 are consistent with those requirements in the CSAPR SO<sub>2</sub> Group 2 Trading Program. The provisions in 40 CFR 97.930–97.935 require the subject units to comply with the monitoring, recordkeeping, and reporting requirements for SO<sub>2</sub> emissions in 40 CFR part 75; thereby satisfying the requirements of 51.308(e)(2)(vi)(C)–(E). The EPA will implement the Texas SO<sub>2</sub> Trading Program using the Allowance Management System, which will provide a consistent approach to implementation and tracking of allowances and emissions for the EPA, subject sources, and the public consistent with the requirements of 40 CFR 51.308(e)(2)(vi)(F). The requirements at 40 CFR 97.913–97.918 for designated and alternate designated representatives are consistent with the requirements of 40 CFR 51.308(e)(2)(vi)(G) and are also consistent with the EPA's other trading programs under 40 CFR part 97. Allowance transfer provisions for the Texas SO<sub>2</sub> Trading Program at 40 CFR 97.922 and 97.923 provide procedures that allow timely transfer and recording of allowances; these provisions will minimize administrative barriers to the operation of the allowance market and ensure that such procedures apply uniformly to all sources and other potential participants in the allowance market, consistent with 40 CFR

51.308(e)(2)(vi)(H). Compliance provisions for the Texas SO<sub>2</sub> Trading Program at 40 CFR 97.924 prohibit a source from emitting a total tonnage of SO<sub>2</sub> that exceeds the tonnage value of its SO<sub>2</sub> allowance holdings as required by 40 CFR 51.308(e)(2)(vi)(I). The Texas SO<sub>2</sub> Trading Program includes automatic allowance surrender provisions at 40 CFR 97.924(d) that apply consistently from source to source and the tonnage value of the allowances deducted shall equal at least three times the tonnage of the excess emissions, consistent with the penalty provisions at 40 CFR 51.308(e)(2)(vi)(J). The Texas SO<sub>2</sub> Trading Program provides for banking of allowances under 40 CFR 97.926; Texas SO<sub>2</sub> Trading Program allowances are valid for compliance in the control period of issuance or may be banked for future use, consistent with 40 CFR 51.308(e)(2)(vi)(K). 40 CFR 51.308(e)(2)(vi)(L) requires periodic program evaluation to assess whether the program is accomplishing its goals and whether modifications to the program are needed to enhance performance of the program. The CAA and EPA's implementing regulations require comprehensive periodic revisions of implementation plans for regional haze under 40 CFR 51.308(f) and periodic review of the state's regional haze approach under 40 CFR 51.308(g) to evaluate progress towards the reasonable progress goals for Class I areas located within the State and Class I areas located outside the State affected by emissions from within the State. Because the Texas SO<sub>2</sub> Trading Program is a BART-alternative and part of the long-term strategy for Texas' Regional Haze obligations, this program will be reviewed in each comprehensive periodic revision and progress report. We anticipate these revisions and progress reports will provide the information needed to assess program performance, as required by 40 CFR 51.308(e)(2)(vi)(L). In sum, the EPA is proposing to affirm our determination that the promulgation of the Texas SO<sub>2</sub> Trading Program meets the requirements of 40 CFR 51.308(e)(2) as a BART alternative for Texas' Regional Haze obligations.

As previously discussed, the EPA modeled the Texas SO<sub>2</sub> Trading Program after the EPA's CSAPR SO<sub>2</sub> Group 2 Trading Program. Relying on a trading program structure that is already in effect enables the EPA, the subject sources, and the public to benefit from the use of the Allowance Management System's forms, and of familiar and tested monitoring, recordkeeping, and reporting requirements. However, there

are a few features of the Texas SO<sub>2</sub> Trading Program that are separate and unique from the EPA's CSAPR. First, the program does not address new units that are built after the inception of the program; these units would be permitted and constructed using emission control technology determined under either BACT or LAER review, as applicable, and would emit at emission rates much lower than the average emission rate of those units participating in the program. Second, the Texas SO<sub>2</sub> Trading Program provides that Texas sources that were previously covered under the CSAPR SO<sub>2</sub> Group 2 Trading Program, but that are not subject to the requirements of subpart FFFFF of part 97, can opt-in to the Texas SO<sub>2</sub> Trading Program at the allocation level established under CSAPR. Finally, the Texas SO<sub>2</sub> Trading Program includes a Supplemental Allowance Pool to provide some compliance assistance to units whose emissions exceed their allocations. The amount of allocations to the Supplemental Allowance Pool each year is less than the portion of the Texas budget under the CSAPR SO<sub>2</sub> Group 2 Trading Program that would have been set aside each year for new units (and which would have been allocated to existing units to the extent not needed by new units).

#### D. Recent Retirements

Vistra permanently retired Big Brown,<sup>93</sup> Monticello,<sup>94</sup> and Sandow<sup>95</sup> this year. This is new information that arose after we issued our October 2017 FIP. There are now a significant amount of allowances that would be allocated to retired units. We also note that Welsh Unit 2 shut down in 2016<sup>96</sup> and the JT Deely units have been announced for retirement at the end of 2018. After all these recent and planned shutdowns, 74,313 tons of allowances would be allocated to retired units. In 2017, these units emitted 105,844 tons of SO<sub>2</sub>. We

<sup>93</sup> See letter dated March 27, 2018 from Kim Mireles of Luminant to the TCEQ requesting to cancel certain air permits and registrations for Big Brown available in the docket for this action.

<sup>94</sup> See letter dated February 8, 2018 from Kim Mireles of Luminant to the TCEQ requesting to cancel certain air permits and registrations for Monticello available in the docket for this action.

<sup>95</sup> See letter dated February 14, 2018 from Kim Mireles of Luminant to the TCEQ requesting to cancel certain air permits and registrations for Sandow 5 Units 5A and 5B available in the docket for this action.

<sup>96</sup> Welsh Unit 2 was retired on April 16, 2016 pursuant to a Consent Decree (No. 4:10-cv-04017-RGK) and subsequently removed from the Title V permit (permit no. 026). We have included the Consent Decree, permitting notes, and new Title V permit showing that the Unit is removed in the docket for this action.

<sup>92</sup> <https://www.vistraenergy.com/vistra-dynegy-merger/>.



specifically solicit comment on how these shutdowns should impact the provision at 40 CFR 97.911(a)(2) regarding allocations to retired units for a period of five years, including comment on the alternative proposal described below.

In light of these shutdowns, we solicit comment on a different approach to calculating the total number of allowances that can be allocated in a control period from the supplemental allowance pool. The 54,711-ton value discussed above is equal to 10,000 tons annually allocated to the pool plus 18% of the total annual allocation for participating units, mirroring the variability limit from CSAPR (40 CFR 97.912(b)). In this alternative approach, the total limit would be 41,335 tons, calculated as 10,000 tons annually allocated to the pool plus 18% of the total annual allocation for participating units *minus the annual allocation for the participating units that have been permanently retired as of January 1, 2019*. The total number of allowances that can be allocated in a single year would therefore be not 293,104, but rather 279,728, which is the sum of the 238,393 budget for existing units plus 41,335.<sup>97</sup> Annual average emissions for the covered sources will be less than or equal to 248,393 tons, and although there will be with some year-to-year variability, that variability will be constrained by the number of banked allowances and allowances available to be allocated during a control period from the Supplemental Allowance pool.

#### E. Interstate Visibility Transport

In our October 2017 final action, we determined that the BART alternatives to address SO<sub>2</sub> and NO<sub>x</sub> BART at Texas' EGUs provided measures that are adequate to ensure that emissions from the State do not interfere with measures to protect visibility in nearby states, and thus the October 2017 final action satisfies the interstate visibility transport requirements. An EPA guidance document (2013 Guidance) on infrastructure SIP elements states that CAA section 110(a)(2)(D)(i)(II)'s interstate visibility transport requirements can be satisfied by approved SIP provisions that the EPA has found to adequately address a state's contribution to visibility impairment in other states.<sup>98</sup> The EPA interprets interstate visibility transport to be

pollutant-specific, such that the infrastructure SIP submission need only address the potential for interference with protection of visibility caused by the pollutant (including precursors) to which the new or revised NAAQS applies.<sup>99</sup> The 2013 Guidance lays out two ways in which a state's infrastructure SIP submittal may satisfy interstate visibility transport. One way is through a state's confirmation in its infrastructure SIP submittal that it has an EPA approved regional haze SIP in place. In the absence of a fully approved regional haze SIP, a demonstration that emissions within a state's jurisdiction do not interfere with other states' plans to protect visibility meets this requirement. Such a demonstration should point to measures that limit visibility-impairing pollutants and ensure that the resulting reductions conform with any mutually agreed emission reductions under the relevant regional haze regional planning organization (RPO) process.<sup>100</sup>

To develop its 2009 Regional Haze SIP, TCEQ worked through its RPO, the Central Regional Air Planning Association (CENRAP), to develop strategies to address regional haze, which at that time were based on emissions reductions from CAIR. To help states in establishing reasonable progress goals for improving visibility in Class I areas, the CENRAP modeled future visibility conditions based on the mutually agreed emissions reductions from each state. The CENRAP states then relied on this modeling in setting their respective reasonable progress goals.

We are proposing to affirm our determination that the October 2017 final action is adequate to ensure that emissions from Texas do not interfere with measures to protect visibility in nearby states because the BART FIP emission reductions are consistent with the level of emission reductions relied upon by other states during consultation. The 2009 Texas Regional Haze SIP relied on CAIR to meet SO<sub>2</sub> and NO<sub>x</sub> BART requirements for EGUs. Under CAIR, Texas EGU sources were projected to emit approximately 350,000 tpy of SO<sub>2</sub>. As discussed elsewhere, Texas EGU SO<sub>2</sub> emissions for sources covered by the trading program will be constrained by the number of available allowances. Average annual emissions for the covered sources will be less than or equal to 248,393 tons with some year

to year variability constrained by the number of banked allowances and number of allowances that can be allocated in a control period from the supplemental pool. Sources not covered by the program emitted less than 27,500 tons of SO<sub>2</sub> in 2016 and are not projected to significantly increase from this level. Any new units would be required to be well controlled and similar to the existing units not covered by the program, they would not significantly increase total emissions of SO<sub>2</sub>. Additionally, the FIP relies on CSAPR as an alternative to EGU BART for NO<sub>x</sub>, which exceeds the emission reductions relied upon by other states during consultation. As such, we are proposing to affirm that the BART alternatives in the October 2017 final action are sufficient to address the interstate visibility transport requirement under CAA section 110(a)(2)(D)(i)(II) for the six NAAQS, and request comment on this determination.

### V. Proposed Action

#### A. Regional Haze

We are proposing to affirm our approval of the portion of the Texas Regional Haze SIP that addresses the BART requirement for EGUs for PM. To address the SO<sub>2</sub> BART requirements for EGUs, we are proposing to affirm our FIP to replace Texas' reliance on CAIR with reliance on an intrastate SO<sub>2</sub> trading program for certain EGUs identified in Table 9. This proposed action would also be part of the long-term strategy to address the reasonable progress requirements for Texas EGUs, which remain outstanding after the remand of our reasonable progress FIP by the Fifth Circuit Court of Appeals.

In this proposed action we are also specifically soliciting comment on whether we should retain or eliminate the additional flexibility for Coletto Creek in Section 40 CFR 97.912 that establishes how allowances are allocated from the Supplemental Allowance Pool to this source in light of this recent change in ownership after the merger of Dynegy and Vistra. In light of recent and planned shutdowns, we specifically solicit comment on how these shutdowns should impact the provision at 40 CFR 97.911(a)(2) regarding allocations to retired units for a period of five years. We also solicit comment on a different approach to calculating the total number of allowances that can be allocated in a control period from the supplemental allowance pool pursuant to 40 CFR 97.912(b). In addition, we are specifically soliciting comment on

<sup>97</sup> See "Texas EGUs 2016 and 2017 annual emissions.xlsx," available in the docket for this action.

<sup>98</sup> See "Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and (2)" included in the docket for this action.

<sup>99</sup> See *id.* at 33.

<sup>100</sup> See *id.*, at 34; 76 FR 22036 (April 20, 2011) (containing EPA's approval of the visibility requirement of 110(a)(2)(D)(i)(II) based on a demonstration by Colorado that did not rely on the Colorado Regional Haze SIP).

retention or elimination of the provision under 40 CFR 97.904(b) that provides opportunity for certain units to opt-in to the Texas SO<sub>2</sub> trading Program.

TABLE 9—TEXAS EGUS SUBJECT TO THE FIP SO<sub>2</sub> TRADING PROGRAM

Owner/ operator	Units
AEP .....	Welsh Power Plant Units 1, 2, and 3. H W Pirkey Power Plant Unit 1. Wilkes Units 1*, 2*, and 3*.
CPS Energy ...	JT Deely Units 1 and 2, Sommers Units 1* and 2*.
Dynegy .....	Coletto Creek Unit 1.
LCRA .....	Fayette/Sam Seymour Units 1 and 2.
Luminant/ Vistra.	Big Brown Units 1 and 2.  Martin Lake Units 1, 2, and 3. Monticello Units 1, 2, and 3. Sandow Unit 4. Stryker ST2*. Graham Unit 2*.
NRG .....	Limestone Units 1 and 2. WA Parish Units WAP4*, WAP5, WAP6, WAP7.
Xcel .....	Tolk Station Units 171B and 172B. Harrington Units 061B, 062B, and 063B.
El Paso Elec- tric.	Newman Units 2*, 3*, and 4*.

\* Gas-fired or gas/fuel oil-fired units.

#### B. Interstate Visibility Transport

In our October 2017 final action, we determined that the BART alternatives to address SO<sub>2</sub> and NO<sub>x</sub> BART at Texas' EGUs were adequate to satisfy the interstate visibility transport requirements for these NAAQS: (1) 1997 8-hour ozone; (2) 1997 PM<sub>2.5</sub> (annual and 24-hour); (3) 2006 PM<sub>2.5</sub> (24-hour); (4) 2008 8-hour ozone; (5) 2010 1-hour NO<sub>2</sub>; and (6) 2010 1-hour SO<sub>2</sub>. The emission reductions from Texas sources associated with these BART alternatives are consistent with the level of emission reductions relied upon by other states when setting their reasonable progress goals. Consistent with our decision in the October 2017 rulemaking, we are proposing to affirm that the measures in the FIP are therefore adequate to ensure that emissions from Texas do not interfere with measures to protect visibility in nearby states with respect to the NAAQS enumerated above in accordance with CAA section 110(a)(2)(D)(i)(II).

## VI. Statutory and Executive Order Reviews

### A. Executive Order 12866: Regulatory Planning and Overview, Executive Order 13563: Improving Regulation and Regulatory Review

This proposed action is not a “significant regulatory action” under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011).

### B. Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

This proposed action is not an Executive Order 13771 regulatory action because this action is not significant under Executive Order 12866.

### C. Paperwork Reduction Act

This proposed action does not impose any new information collection burden under the PRA. The information collection activities in the October 2017 final rule promulgating the Texas SO<sub>2</sub> Trading Program at 40 CFR part 97, subpart FFFFF are being submitted to the Office of Management and Budget (OMB) under the PRA as part of the current Information Collection Request (ICR) renewal for the CSAPR trading programs. OMB has previously approved the information collection activities for the CSAPR trading programs and has assigned OMB control number 2060–0667. The ICR document that the EPA prepared for the renewal has been assigned EPA ICR number 2391.05. You can find a copy of the ICR at <https://www.regulations.gov> under Docket ID Number EPA–HQ–OAR–2018–0209. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

### D. Regulatory Flexibility Act

I certify that this proposed action will not have a significant impact on a substantial number of small entities. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden or otherwise has a positive economic effect on the small entities subject to the rule. This proposed rule does not impose any requirements or create impacts on small entities. This proposed FIP action under Section 110 of the CAA will not create

any new requirement with which small entities must comply. Accordingly, it affords no opportunity for the EPA to fashion for small entities less burdensome compliance or reporting requirements or timetables or exemptions from all or part of the rule. The fact that the CAA prescribes that various consequences (e.g., emission limitations) may or will flow from this action does not mean that the EPA either can or must conduct a regulatory flexibility analysis for this action. We have therefore concluded that this proposed action will have no net regulatory burden for all directly regulated small entities.

### E. Unfunded Mandates Reform Act (UMRA)

This proposed action does not contain an unfunded mandate of \$100 million or more as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments.

### F. Executive Order 13132: Federalism

This proposed action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

### G. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This proposed rule does not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments. Thus, Executive Order 13175 does not apply to this rule.

### H. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks<sup>101</sup> applies to any rule that: (1) Is determined to be economically significant as defined under Executive Order 12866; and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. EPA interprets E.O. 13045 as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under Section 5–501 of the E.O. has the potential to influence the regulation. This proposed action is not subject to Executive Order 13045 because it is not economically

<sup>101</sup> 62 FR 19885 (Apr. 23, 1997).

significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this proposed action present a disproportionate risk to children. This proposed action is not subject to E.O. 13045 because it implements specific standards established by Congress in statutes. However, to the extent this proposed rule will limit emissions of SO<sub>2</sub>, the proposed rule will have a beneficial effect on children's health by reducing air pollution.

*I. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use*

This proposed action is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

*J. National Technology Transfer and Advancement Act (NTTAA)*

This proposed action involves technical standards. The EPA has decided to use the applicable monitoring requirements of 40 CFR part 75. Part 75 already incorporates a number of voluntary consensus standards. Consistent with the Agency's Performance Based Measurement System (PBMS), part 75 sets forth performance criteria that allow the use of alternative methods to the ones set forth in part 75. The PBMS approach is intended to be more flexible and cost-effective for the regulated community; it is also intended to encourage innovation in analytical technology and improved data quality. At this time, EPA is not recommending any revisions to part 75; however, EPA periodically revises the test procedures set forth in part 75. When EPA revises the test procedures set forth in part 75 in the future, EPA will address the use of any new voluntary consensus standards that are equivalent. Currently, even if a test procedure is not set forth in part 75, EPA is not precluding the use of any method, whether it constitutes a voluntary consensus standard or not, as long as it meets the performance criteria specified; however, any alternative methods must be approved through the petition process under 40 CFR 75.66 before they are used.

*K. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*

The EPA believes that this proposed action does not have disproportionately high and adverse human health or environmental effects on minority

populations, low-income populations and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). We have determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. The proposed rule limits emissions of SO<sub>2</sub> from certain facilities in Texas.

**List of Subjects**

*40 CFR Part 52*

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur dioxides, Visibility, Interstate transport of pollution, Regional haze, Best available retrofit technology.

*40 CFR Part 97*

Environmental protection, Administrative practice and procedure, Air pollution control, Intergovernmental relations, Nitrogen dioxide, Reporting and recordkeeping requirements, Sulfur dioxides.

Dated: August 17, 2018.

**Anne Idsal,**

*Regional Administrator.*

[FR Doc. 2018-18497 Filed 8-24-18; 8:45 am]

**BILLING CODE 6560-50-P**

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 721**

[EPA-HQ-OPPT-2017-0560; FRL-9982-78]

**RIN 2070-AB27**

**Significant New Use Rules on Certain Chemical Substances**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** EPA is proposing significant new use rules (SNURs) under the Toxic Substances Control Act (TSCA) for 10 chemical substances which were the subject of premanufacture notices (PMNs). The chemical substances are subject to Orders issued by EPA pursuant to section 5(e) of TSCA. This action would require persons who intend to manufacture (defined by

statute to include import) or process any of these 10 chemical substances for an activity that is designated as a significant new use by this rule to notify EPA at least 90 days before commencing that activity. The required notification initiates EPA's evaluation of the intended use within the applicable review period. Persons may not commence manufacture or processing for the significant new use until EPA has conducted a review of the notice, made an appropriate determination on the notice, and has taken such actions as are required with that determination. In addition to this notice of proposed rulemaking, EPA is issuing the action as a direct final rule elsewhere in this issue of the **Federal Register**.

**DATES:** Comments must be received on or before September 26, 2018.

**ADDRESSES:** Submit your comments, identified by docket identification (ID) number EPA-HQ-OPPT-2017-0560, by one of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the online instructions for submitting comments. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute.

- *Mail:* Document Control Office (7407M), Office of Pollution Prevention and Toxics (OPPT), Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington, DC 20460-0001.

- *Hand Delivery:* To make special arrangements for hand delivery or delivery of boxed information, please follow the instructions at <http://www.epa.gov/dockets/contacts.html>.

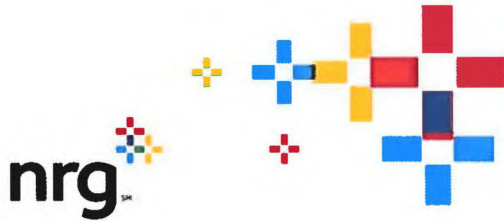
Additional instructions on commenting or visiting the docket, along with more information about dockets generally, is available at <http://www.epa.gov/dockets>.

**FOR FURTHER INFORMATION CONTACT:** For technical information contact: Kenneth Moss, Chemical Control Division (7405M), Office of Pollution Prevention and Toxics, Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington, DC 20460-0001; telephone number: (202) 564-9232; email address: [moss.kenneth@epa.gov](mailto:moss.kenneth@epa.gov).

For general information contact: The TSCA-Hotline, ABVI-Goodwill, 422 South Clinton Ave., Rochester, NY 14620; telephone number: (202) 554-1404; email address: [TSCA-Hotline@epa.gov](mailto:TSCA-Hotline@epa.gov).

**SUPPLEMENTARY INFORMATION:** In addition to this notice of proposed rulemaking, EPA is issuing the action as a direct final rule elsewhere in this issue of the **Federal Register**. For further





**NRG Texas Power LLC**  
910 Louisiana Street  
Houston, TX 77002

October 26, 2018

**VIA ELECTRONIC FILING**

Ms. Jennifer Huser  
Air Planning Section (6MM-AA)  
Environmental Protection Agency  
1445 Ross Avenue, Suite 700  
Dallas, Texas 75202-2733

**Re: Comments of NRG Texas Power LLC on EPA's Proposed Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan**

**Docket No. EPA-R06-OAR-2016-0611, 83 FR 43586 (August 27, 2018)**

Dear Ms. Huser,

NRG Texas Power LLC ("NRG Texas") respectfully offers the following comments on the Environmental Protection Agency's ("EPA's") proposed Federal Implementation Plan ("FIP") regarding the intrastate trading program capping emissions of SO<sub>2</sub> from certain Electric Generating Units ("EGUs") in Texas and its determination that this program meets the requirements for an alternative to BART for SO<sub>2</sub> (the "Proposed Rule").

NRG Texas is a subsidiary of NRG Energy, Inc., a Fortune 250 Company and one of the country's largest power generation and retail electricity businesses. NRG Energy's subsidiaries own and operate power plants, which provide about 26,000 megawatts of generation capacity, and its retail businesses serve more than three million customers throughout the country. In Southeast Texas, NRG Texas owns more than 10,000 MW of generation capacity at nine plants. We appreciate the opportunity to comment on the Proposed Rule.

NRG Texas supports EPA's proposed intrastate trading program and agrees that it is an excellent alternative to BART. The trading program caps emissions consistent with visibility transport requirements to meet the reasonable progress requirements of the Regional Haze Rule. Additionally, NRG Texas and other EGU owners in Texas participate in a competitive ERCOT power market; therefore, such an allowance trading program promotes cost efficient emission reductions while helping to ensure reliability of the competitive power market in Texas.

To optimize the benefit of letting the competitive market drive emission reductions, NRG Texas requests minor modifications to the allocation method. EPA has requested comments on: (i) the allocation effect of recent shutdowns; (ii) proposed alternative allocation approaches; (iii) the allocation effect of the Vistra/Dynegy merger; (iv) and alternative approaches to the supplemental pool of allowances. NRG Texas believes the following changes would improve the proposed program:

1. In the current proposal, approximately 38% of the total available allowances would be distributed to owners of units that will be retired at the start of the trading program. Consistent with the concern EPA initially had with Coletto Creek, being at risk as a standalone unit, allocating the full allotment of allowances to retired sources could reduce the liquidity in the market for these allowances. This concern increases with only 7 companies participating in the market. The lack of liquidity could distort the market if people who have excess allowances decide not to sell.

For units retired prior to each program year, NRG Texas suggests revising § 97.911(a)(2) regarding the allocation of allowances to retired units. For the retired units, NRG Texas suggests that twenty percent (20%) of the retired unit allowances be allocated to the Supplemental Allowance Pool in each of the calendar trading years following the retirement of each of the subject units. This regime provides a gradual ramp down in years 1 through 5, in lieu of the current proposal in which the EGU owner retains all retired unit allocations for five years. It will be critical during the initial years of the program to establish sufficient allowances in the Supplemental Allowance Pool, due to the small number of program participants and uncertain trading liquidity. For example, based on reported 2017 SO<sub>2</sub> emissions, NRG Texas has identified three sources subject to the trading program expected to operate in 2019 that would have oversubscribed the Supplemental Allowance Pool by 133%.

Accordingly, we suggest that an owner should not be able to access the Supplemental Allowance Pool on a source-by-source basis without consideration for its fleet-wide allowance holdings, but rather only if its fleet of sources is short allowances, then the owners' sources have access to the Supplemental Allowance Pool.

2. NRG Texas believes that with the Vistra/Dynegy merger, the basis for granting additional flexibility to Dynegy's Coletto Creek no longer exists and should be eliminated. Coletto Creek is allocated its maximum supplemental allocation from the Supplemental Allowance Pool, as long as there are sufficient allowances available for this allocation, and its actual allocation will not be reduced in proportion with any reductions made to the supplemental allocations to other sources. As noted above, it will be critical during the initial years of the program to ensure that there are sufficient allowances in the Supplemental Allowance Pool and this additional flexibility exclusively provided to Coletto Creek would significantly reduce the allowances available to other sources.

3. NRG Texas supports EPA's proposal to mirror the variability limit from CSAPR to add up to 18% of the total allocation annually to the 10,000 tons in the supplemental pool and that the total Supplemental Allowance Pool limit should be adjusted from the initial proposal of 54,711 tons to the new proposed limit of 41,335 tons.
4. NRG Texas supports EPA's retention of the provision under 40 CFR 97.904(b), which provides opportunity for certain units to opt-in to the Texas SO<sub>2</sub> trading program. The opt-in provision provides the opportunity for EPA and Texas to address the Reasonable Progress requirements of the Regional Haze rule with the same efficient intrastate trading program.
5. NRG Texas supports excluding Parish Unit 8 from the proposed intrastate trading program, so long as EPA maintains the opt-in provision. NRG Texas agrees that the shifting of generation from the participating units at the Parish facility to Parish Unit 8 would result in a decrease in overall emissions from the facility.
6. NRG Texas supports EPA's approval of the portion of the Texas Regional Haze SIP that addresses the BART requirement for EGUs for PM.
7. NRG Texas supports EPA's determination that Texas' participation in CSAPR's trading program for ozone-season NO<sub>x</sub> qualifies as an alternative to source-specific NO<sub>x</sub> BART.
8. NRG Texas believes SIPs are more appropriate to address Regional Haze. As noted in this final rule, EPA and Texas previously entered into a Memorandum of Agreement (MOA) to provide for Texas to submit a SIP for an intrastate trading program to meet the applicable BART regional haze and interstate visibility transport requirements.
9. NRG Texas supports EPA's determination that the BART alternatives in the October 2017 final action are sufficient to address the interstate visibility transport requirements under CAA section 110(a)(2)(D)(i)(II) for the following six NAAQS: (1) 1997 8-hour ozone; (2) 1997 PM<sub>2.5</sub> (annual and 24-hour); (3) 2006 PM<sub>2.5</sub> (24-hour); (4) 2008 8-hour ozone; (5) 2010 1-hour NO<sub>2</sub>; and (6) 2010 1-hour SO<sub>2</sub>.
10. NRG Texas continues to support this intrastate trading program over the adoption of a source-by-source approach (source-specific BART) to address the BART requirements for units subject to BART in Texas, and resubmits its May 5, 2017 comments as an attachment. In sum:
  - A. The photochemical modeling supporting the FIP did not reliably predict the Parish Units' minimal visibility impacts, due in part to the substantial distance between Parish and the Class I areas addressed.
  - B. EPA's visibility modeling was fundamentally flawed as a result of multiple erroneous inputs and methods. Were EPA to adopt a less flawed approach to modeling visibility impacts, the Parish Units



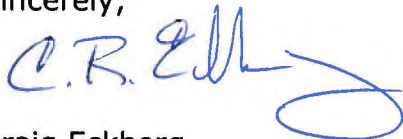
would meet the insignificance threshold, and are therefore not properly subject to BART.

- C. EPA's five-factor BART analysis was also fundamentally flawed as a result of erroneous inputs and methods. If EPA were to decide (erroneously) that the Parish Units were subject to BART, EPA should correct its five-factor BART analysis to show that the Parish Units satisfy BART without additional controls.
- D. As discussed in our May 5, 2017 comments, despite these flaws, if EPA were to impose additional BART controls on the Parish Units, EPA should integrate appropriate alternative compliance options, such as the intrastate trading program that is the subject of this rulemaking.

The Parish and Limestone Units participate in the competitive ERCOT power market, and Parish is more distant from all Class I areas than other market participants. In light of the competitive nature of the market, NRG Texas believes the intrastate trading program allows for managing power supply and grid reliability while providing a market-based approach that will lead to a more efficient outcome.

NRG Texas appreciates your consideration of this information. Please contact me at 713-537-2776 or [craig.eckberg@nrg.com](mailto:craig.eckberg@nrg.com) if you have any questions or require additional information.

Sincerely,



Craig Eckberg  
Director, Environmental Services  
NRG Texas Power LLC

Cc: Mr. David Brymer, Air Quality Division, TCEQ

## **ATTACHMENTS**

NRG Texas submits the following attachment in support of its comments on EPA's Proposed Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan, Docket No. EPA-R06-OAR-2016-0611, 83 FR 43586 (August 27, 2018):

- NRG Texas May 5, 2017 comments to EPA



October 26, 2018

*Submitted via Electronic Mail to R6\_TX-BART@epa.gov and www.regulations.gov*

Ms. Jennifer Huser  
Air Planning Section (6MM-AA)  
Environmental Protection Agency, Region 6  
1445 Ross Avenue, Suite 700  
Dallas, TX 75202-2733

**RE: Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan: Proposal of Best Available Retrofit Technology (BART) and Interstate Transport Provisions, 83 Fed. Reg. 43,586 (Aug. 27, 2018); EPA-R06-OAR-2016-0611; FRL-9982-50-Region 6**

Earthjustice, National Parks Conservation Association (“NPCA”), Sierra Club, and Environmental Defense Fund (collectively, “Conservation Organizations”) respectfully submit the following comments regarding the Environmental Protection Agency’s (“EPA”) proposed Regional Haze Best Available Retrofit Technology (“BART”) and Interstate Visibility Transport Federal Implementation Plan for Texas, **83 Fed. Reg. 43,586 (Aug. 27, 2018)** [hereinafter the “Trading Rule”]. We incorporate by reference and are attaching comments and expert reports submitted by Earthjustice, NPCA, and the Sierra Club regarding prior actions taken in the development of the Texas regional haze plan. Docket ID No. EPA-R06-OAR-2016-0611.

In 1990, Congress amended the Clean Air Act to require states and EPA to remedy the impairment of visibility in mandatory Class I national parks and wilderness areas caused by human-made air pollution. 42 U.S.C. § 7491(a)(1). Those amendments required states to submit regional haze “state implementation plans” (“SIPs”) containing “emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward the national goal” of remedying such visibility impairment in Class I areas. *Id.* § 7491(b)(2). A key component of SIPs are required best available retrofit technology controls at each fossil fuel-fired power plant in the state that went into operation between 1962 and 1977 and that “may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area.” *Id.* § 7491(b)(2)(A); 40 C.F.R. § 51.308(e). Where a state fails to submit a compliant haze SIP to EPA for approval, EPA is required to promulgate a haze federal implementation plan (“FIP”) for that state.

Coal-fired power plants in Texas cause significant air pollution in numerous Class I areas throughout the region, as a plethora of plants in Texas continue to lack the cost-effective, modern pollution controls that have been required as BART in many other states. Indeed, the more than 218,000 tons of sulfur dioxide (“SO<sub>2</sub>”) emitted every year from the Texas coal-fired power

plants covered under the Trading Rule adversely impact air quality in at least 15 designated Class I areas across seven states, including Big Bend National Park and Guadalupe Mountains National Park in Texas, Caney Creek and Upper Buffalo Wilderness Areas in Arkansas, and six Class I areas in New Mexico. In fact, Texas power plants contribute more to haze pollution in out-of-state Class I areas, like Oklahoma's Wichita Mountains, than do Oklahoma's own sources.

Such significant pollution impacts continue to this day because of decades of intransigence by Texas and inaction by EPA. In October 2017, EPA pretended to finally act on Congress' 1990 haze requirements by finalizing a purported haze FIP for Texas. But to call that October 2017 plan a "haze FIP" is to deprive that term of all meaning, as EPA's plan fails to require any BART-eligible source in Texas to take any steps to reduce the visibility impairing SO<sub>2</sub> pollution emitted by coal plants in Texas. Instead, EPA finalized a "Trading Rule" that would allow covered sources in Texas to increase SO<sub>2</sub> emissions by tens of thousands of tons per year compared to actual 2015-2017 emissions. As a result, Texas power plants covered under the Trading Rule would be allowed to collectively emit more SO<sub>2</sub> per year than all of the sources in the surrounding states of Alabama, Arkansas, Arizona, Colorado, Iowa, Kansas, Louisiana, Mississippi, Nebraska, New Mexico, Oklahoma, and Utah, *combined*, did in 2017. It is, of course, nonsensical to contend that a trading scheme that would authorize emissions to *increase* by tens of thousands of tons per year satisfies EPA's statutory duty to ensure reasonable progress towards eliminating haze pollution. Yet that is exactly what EPA has, and continues to, unlawfully, arbitrarily, and capriciously contend.

In its August 2018 proposed rule, issued nearly eight months after the Conservation Organizations submitted a still-pending petition for reconsideration of the October 2017 Trading Rule,<sup>1</sup> EPA purports to seek comment on "certain aspects" of the Rule. Yet this effort is plainly a charade, as the agency does not propose any substantive changes to the Rule and, instead, signals its intent to "affirm" the already finalized Trading Rule that it now claims to seek public input on. Such affirmation would be just as unlawful, arbitrary, and capricious as was EPA's promulgated Trading Rule in October 2017, for the numerous reasons explained in this comment letter and briefly summarized as follows:

- The Trading Rule was unlawfully adopted in October 2017 without providing the public with notice and a meaningful opportunity to comment, and such legal defect cannot be cured by EPA's current proposal to "affirm" the same Rule that it already finalized.
- EPA has failed to provide any rational basis for abandoning its January 2017 source-specific BART proposal, which is the only option that EPA has proposed that would satisfy the Clean Air Act's BART requirements.

---

<sup>1</sup> See NPCA, Sierra Club, and EDF, Petition for Reconsideration of Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan (Oct. 17, 2017); EPA-R06-OAR-2016-0611; FRL-9969-07-Region 6 (Dec. 15, 2017), Docket ID No. EPA-R06-OAR-2016-0611-0135, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0135>.

- While EPA and states can establish an emissions trading program as an alternative in lieu of BART, they can do so only if the trading program would make greater reasonable progress in improving visibility than BART would. EPA has not and cannot show that the Trading Rule satisfies this BART alternative test for at least four reasons:
  - EPA failed to compare the Trading Rule to a determination of BART.
  - EPA failed to follow its own regulations and policies in attempting to demonstrate that the Trading Rule would somehow make greater reasonable progress than BART.
  - The Trading Rule cannot satisfy the core requirement that a BART alternative achieve greater reasonable progress than BART, as EPA's own prior analyses show that BART would reduce Texas SO<sub>2</sub> emissions by 194,000 tons per year, while the Trading Rule would allow actual emissions to increase over their 2015-2017 levels.
  - While EPA purported to find that the Trading Rule would achieve greater reasonable progress than the Cross-State Air Pollution Rule ("CSAPR"), that approach is legally insufficient because a BART alternative must be compared to BART, not to another BART alternative. In addition, EPA's claims about CSAPR here directly conflict with the agency's recent conclusion that withdrawal of Texas from the CSAPR SO<sub>2</sub> program would improve air quality because BART in Texas would lead to greater emission reductions than continued coverage under CSAPR.
- The Trading Rule unlawfully provides that the mere submission of a SIP by the State of Texas authorizes EPA to effectively suspend the trading program.
- The Trading Rule would unlawfully and unreasonably fail to create any incentive for Texas sources to reduce their SO<sub>2</sub> emissions because of fundamental flaws in the design of the trading scheme, including:
  - Unlawfully and unreasonably providing emission allowances to sources that have already retired.
  - Unreasonably continuing to provide emission allowances to sources that retire in the future for five years after such retirement.
  - Inclusion of a Supplemental Allowance Pool that would unlawfully and unreasonably allow sources to increase emissions.
- The Trading Rule fails to satisfy Texas's Clean Air Act Section 110(A)(2)(D)(i)(II) visibility transport plan requirements.
- EPA arbitrarily and capriciously failed to conduct a source-specific BART analysis for particulate matter ("PM") emissions.



- EPA appears to suggest without actually proposing that the Trading Rule could somehow satisfy the Regional Haze Rule’s separate reasonable progress and long-term strategy requirements, but any such claim is unlawful and unreasonable for at least four reasons:
  - The Trading Rule cannot substitute for EPA’s obligation to consider the four statutory “reasonable progress” factors, 42 U.S.C. § 7491(g)(1), in determining reasonable progress measures.
  - EPA has an independent and outstanding obligation to address reasonable progress for both Texas and Oklahoma, and must conduct a separate rulemaking with additional opportunity for comment before purporting to satisfy all reasonable progress obligations.
  - The record in this and the related reasonable progress rulemaking dockets makes clear that additional emission reductions from Texas EGUs are cost effective and would improve visibility at Texas and Oklahoma Class I areas.
  - There is no legal authorization in the Regional Haze Rule for a trading scheme to serve as an “alternative” to reasonable progress requirements or replace EPA’s duty to establish enforceable emission limits needed to achieve reasonable progress goals.
- If EPA ignores the legal and technical flaws identified throughout these comments, and insists on affirming the Trading Rule, the agency must publish a finding that the Rule “is based on a determination of nationwide scope or effect,” 42 U.S.C. § 7607(b)(1) and should, therefore, be reviewed in the United States Court of Appeals for the District of Columbia.

EPA’s proposal to double down on the unlawful, arbitrary, and capricious October 2017 Trading Rule is especially problematic because the path to actually satisfying the regional haze BART requirements in Texas has already been identified by the agency and remains on the record unrefuted. In particular, EPA’s January 2017 proposed source-specific BART plan would have reduced harmful Texas power plant SO<sub>2</sub> emissions by approximately 194,000 tons per year by requiring Texas’ numerous BART-eligible power plants to install or upgrade of cost-effective modern pollution controls that the large majority of coal plants throughout the country have already installed.<sup>2</sup> The resulting plan would dramatically improve visibility at Class I areas (and provide substantial public health benefits) across the region. EPA has not, and cannot, provide any reasoned basis to reject that BART plan.

It has now been more than 40 years since Congress called on states and EPA to take the steps necessary to reduce haze pollution throughout the country. Some such steps have been taken throughout the country, but not in Texas where coal plants continue to spew massive amounts of SO<sub>2</sub> pollution that impair visibility and imperil public health, and where EPA now seeks to allow even more such pollution. Enough is enough. Both the law and common sense require EPA to abandon its misguided Trading Rule, which would lead to more years of delay

---

<sup>2</sup> See 82 Fed. Reg. 921, 921-47 (Jan. 4, 2017) (citing numerous Technical Support Documents such as the BART Screening TSD, BART FIP TSD, Cost TSD, BART Modeling TSD).

and litigation, rather than better visibility and air quality. And in its stead, EPA should expeditiously finalize its January 2017 source-specific BART plan so that the air quality improvements initially promised by Congress more than four decades ago can finally be realized.

## Table of Contents

BACKGROUND .....	1
I. Haze Pollution from Texas Power Plants .....	1
II. The Clean Air Act’s Regional Haze Program.....	5
III. Procedural Background.....	6
A. Texas’ Inadequate State Implementation Plan.....	7
B. EPA’s So-Called Better-than-BART Rule.....	7
C. EPA’s Obligation to Address Texas’ Regional Haze Requirements .....	8
D. The January 2017 BART Proposal .....	9
E. EPA Finalizes the Trading Rule Without Providing Prior Notice or an Opportunity to Comment on the Trading Rule .....	10
F. EPA Proposes to Affirm the Trading Rule .....	11
ARGUMENT .....	13
I. THE TRADING RULE IS UNLAWFUL BECAUSE IT WAS PROMULGATED WITHOUT FOLLOWING NOTICE AND COMMENT REQUIREMENTS. ....	13
A. The Clean Air Act’s Notice and Comment Requirements.....	13
B. The Trading Rule Circumvented the Clean Air Act’s Notice and Comment Procedures .....	13
C. Proposing to “Affirm” the Trading Rule Cannot Cure EPA’s Notice and Comment Violations. ....	17
II. EPA MUST ISSUE A FIP. ....	18
A. Under the Clean Air Act, EPA’s Duty to Issue a FIP is Nondiscretionary. ....	18
B. EPA Must Fulfill its Duty to Issue a Compliant FIP for Texas. ....	19
III. EPA MUST FINALIZE A SOURCE-SPECIFIC BART RULE.....	20
A. EPA Provides No Rational Basis for Abandoning the Source-Specific BART Proposal in Favor of the Trading Rule.....	21
B. Source-Specific BART is the Only Option EPA Has Proposed that is Consistent with Statutory Requirements and Goals. ....	23

C.	Any BART Alternative is Unlawful Because No Emissions Reductions Could Occur Before the End of the First Planning Period. ....	24
D.	EPA’s BART Alternative is Unlawful Because it Allocates Emission Credits to Sources that Have Already Retired. ....	25
IV.	THE PROPOSED TRADING PROGRAM VIOLATES THE REGULATORY TEST FOR A BART ALTERNATIVE. ....	26
A.	EPA Has Failed to Compare the Trading Rule to BART, as Required by the Regional Haze Rule. ....	26
1.	The trading scheme is not designed to meet requirements other than BART, and even if it were, EPA must analyze BART on a source-by-source basis. .	27
2.	Even if the Trading Rule were designed to meet requirements other than BART, EPA has unlawfully failed to analyze BART for sources subject to BART and covered by the trading program. ....	29
3.	EPA violated the Regional Haze Rule by failing to determine which units are subject to BART. ....	30
4.	EPA cannot use CSAPR as a BART benchmark in attempting to show that the Trading Rule makes greater reasonable progress than BART. ....	31
B.	EPA Failed to Follow its Own Regulations for Determining Whether the Clear Weight of Evidence Demonstrates that an Alternative Achieves Greater Reasonable Progress than BART. ....	32
C.	The Trading Rule Violates the Core Requirement that a BART Alternative Achieve Greater Reasonable Progress than BART. ....	35
1.	The clear weight of evidence demonstrates that the trading program will not make greater reasonable progress than BART. ....	35
2.	The Trading Rule Allows SO <sub>2</sub> Emissions to Increase, Whereas BART Would Require Emissions Reductions. ....	38
a.	The Trading Rule would allow SO <sub>2</sub> emissions to increase. ....	38
b.	The Trading Rule fails to include measures that are essential to reducing SO <sub>2</sub> emissions. ....	40
i.	The importance of setting a cap that is lower than actual emissions .....	41
ii.	Elimination of the supplemental allowance pool. ....	42
iii.	Reforms to EPA’s allowance distribution methodology .....	42

a)	Implementation of a declining SO <sub>2</sub> emissions cap .....	42
b)	Implementation of an allowance price floor .....	42
c)	Regular recalculation of each unit’s allowances .....	43
d)	Units that Retire .....	43
e)	Unlimited banking of allowances that never expire should be ended. ....	44
iv.	The price of Trading Rule allowances will likely be so low that there will be no incentive to install pollution controls or otherwise reduce emissions below the emissions cap. ....	44
3.	EPA’s “CSAPR Better than BART” analysis does not show and cannot be used to show that the Trading Rule achieves greater reasonable progress than BART. ....	47
a.	The “CSAPR Better than BART” analyses upon which the Trading Rule relies demonstrate that source-specific BART would make greater reasonable progress than CSAPR for Texas .....	47
b.	EPA cannot claim that the Trading Rule is equivalent to “CSAPR better than BART” because the Trading Rule is not “functionally equivalent” to CSAPR, and EPA’s exclusion of CSAPR units is arbitrary. ....	50
c.	In adopting the SO <sub>2</sub> CSAPR better-than-BART demonstration, EPA faces a Catch-22 that it cannot overcome. ....	52
V.	IN ADDITION TO FAILING THE TEST FOR A BART ALTERNATIVE, THE TRADING RULE VIOLATES OTHER LEGAL REQUIREMENTS. ....	56
A.	In Violation of the Clean Air Act, the Trading Rule Provides that the Mere Submission of a SIP Would Suspend Key Parts of the Rule. ....	56
B.	It is Arbitrary and Capricious for the Trading Rule to Allocate Allowances to Units that Have Already Retired or Will Retire by the Date the Final Rule is Issued. ....	57
C.	The Trading Rule’s Treatment of Units that Retire in the Future is Arbitrary and Capricious. ....	59
D.	The Supplemental Allowance Pool’s Treatment of Coletto Creek is Unlawful and Arbitrary and Capricious.....	60
VI.	THE TRADING RULE DOES NOT SATISFY TEXAS’ CLEAN AIR ACT SECTION 110(A)(2)(D)(I)(II) VISIBILITY TRANSPORT PLAN REQUIREMENTS. ....	61

VII.	EPA’S FAILURE TO CONDUCT A SOURCE-SPECIFIC PM BART ANALYSIS IS ARBITRARY AND CAPRICIOUS. ....	62
A.	EPA’s Approval of Texas’ Screening Approach Cannot be Reconciled with the Plain Language of the Clean Air Act. ....	63
B.	The Screening Approach Conflicts with the Regional Haze Rule and BART Guidelines. ....	64
C.	EPA’s Pollutant-Specific Approach Departs from Past Practice. ....	65
D.	EPA has Failed to Demonstrate that the Screening Approach is Appropriate Here. ....	66
E.	Texas’ Determination is Based in Part on the Unsupported Selection of 0.5 Deciviews as the Threshold for Contribution to Visibility Impairment. ....	67
VIII.	EPA CANNOT RELY ON THE BART TRADING SCHEME TO SATISFY THE REGIONAL HAZE RULE’S REASONABLE PROGRESS REQUIREMENTS. ....	69
A.	EPA Must Consider Whether Additional Emission Reductions Are Required From Texas EGUs—Whether Subject To BART Or Not—To Make Reasonable Progress Toward Natural Visibility. ....	70
B.	EPA Must Separately Evaluate and Establish Reasonable Progress Goals for all Class I Areas Affected by Texas Emissions to Ensure Reasonable Progress. ....	73
C.	A Proper Reasonable Progress Analysis Makes Clear that Additional Emission Reductions from Texas EGUs are Cost-Effective and Necessary to Improve Visibility at Texas and Oklahoma Class I Areas. ....	76
D.	EPA Cannot Rely on the Trading Rule to Satisfy Reasonable Progress Without Additional Notice and Comment. ....	80
IX.	REQUIRING SOURCE-SPECIFIC POLLUTION CONTROLS WOULD NOT THREATEN GRID RELIABILITY. ....	81
X.	THE TRADING RULE IS BASED ON A DETERMINATION OF NATIONWIDE SCOPE AND EFFECT. ....	82
A.	In Comparing the Trading Rule to the Better than BART Rule, EPA Has Unlawfully Reinterpreted 40 C.F.R. § 51.308(e). ....	83
B.	EPA’s Unlawful Interpretation of 40 C.F.R. § 51.308(e) Amounts to a Revision of a Nationally Applicable Regulation and is Subject to the Clean Air Act’s Rulemaking Requirements. ....	84

C.	The Proper Venue for Subsequent Legal Challenges to the Trading Rule Would be the D.C. Circuit even if EPA Fails to Publish a Determination of Nationwide Scope or Effect.....	84
CONCLUSION.....		84

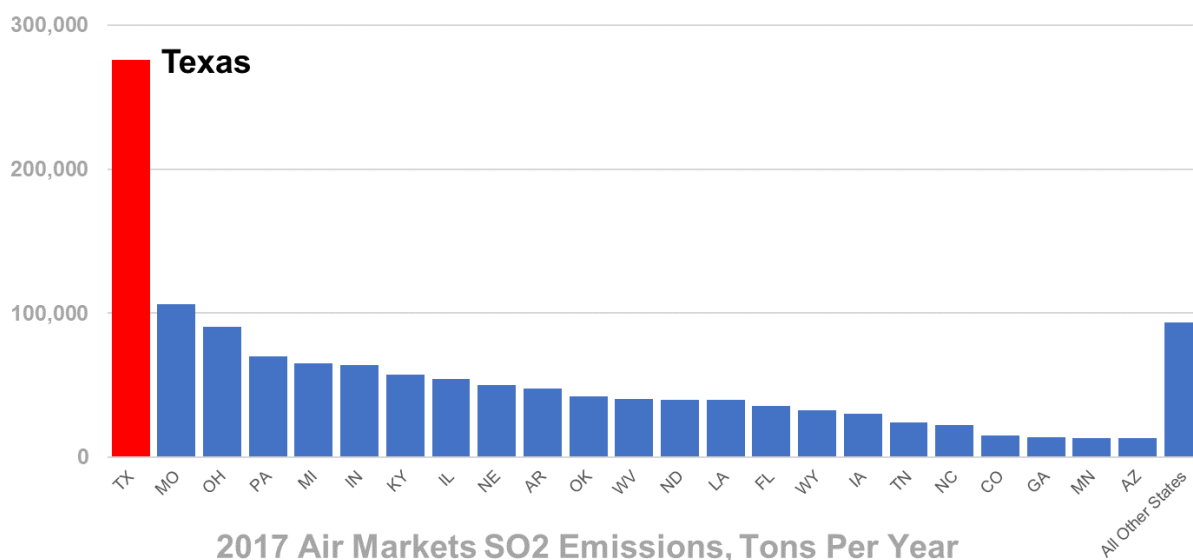


## BACKGROUND

### I. HAZE POLLUTION FROM TEXAS POWER PLANTS

For national parks and wilderness areas in Texas and neighboring states, sulfur dioxide (“SO<sub>2</sub>”) is the main contributor to haze pollution. 82 Fed. Reg. 912, 921 (Jan. 4, 2017). In addition to impairing visibility in protected public lands, SO<sub>2</sub> reacts with other compounds in the air to form fine particles that penetrate sensitive parts of the lungs and can aggravate respiratory and heart diseases. Airborne fine particles are linked to increased hospital admissions, missed work and school, and premature death.<sup>3</sup>

Texas sources emit far more SO<sub>2</sub> than sources in any other state, as the following chart indicates.<sup>4</sup>



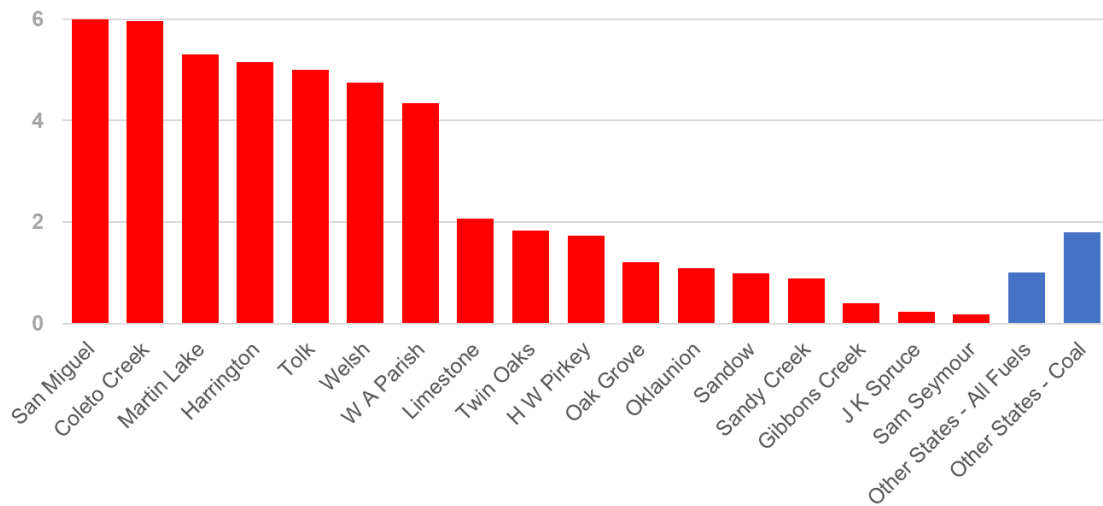
This is due in part to the fact that many Texas power plants lack the pollution controls widely used in other states.<sup>5</sup> As a result, many Texas power plants emit SO<sub>2</sub> at a rate higher than the average power plant in other states, as the following chart shows.<sup>6</sup>

<sup>3</sup> See EPA, Sulfur Dioxide Basics, available at <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics>; EPA, Health and Environmental Effects of Particulate Matter (PM), available at <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>.

<sup>4</sup> See generally EPA, Air Markets Program Data, available at <https://ampd.epa.gov/ampd/>. To put the SO<sub>2</sub> emissions from Texas into perspective, just the SO<sub>2</sub> emissions from the power plants that would participate in the Trading Rule are greater than the total SO<sub>2</sub> emissions from all the power plants in Pennsylvania and Missouri in 2017.

<sup>5</sup> See EPA, FIP Cost TSD at 1, Docket ID No. EPA-R06-OAR-2014-0754-0008, available at <https://www.regulations.gov/document?D=EPA-R06-OAR-2014-0754-0008> [hereinafter “Cost TSD”].

<sup>6</sup> See generally EPA, Air Markets Program Data, available at <https://ampd.epa.gov/ampd/>. See also the file “2017 AMPD Emissions.xlsx,” attached as Ex. 1. Emission rates in pounds (“lbs”) per megawatt-hour (“MWh”) for each facility and electric generating units (“EGUs”) in all other states were calculated by multiplying the total SO<sub>2</sub> emissions in tons by the conversion factor of 2000 lbs/ton and dividing by the total reported gross load in MWh.

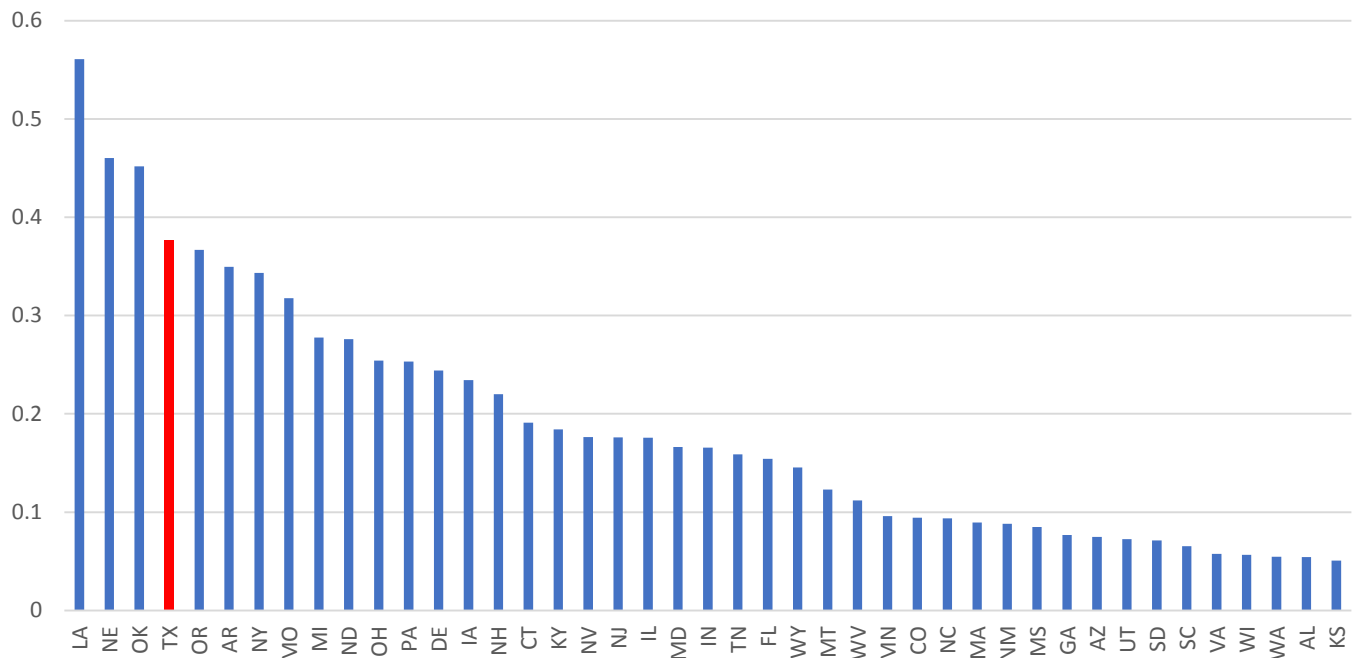


**2017 Air Markets SO<sub>2</sub> Emissions, lbs/MWh**

Coal-fired units are responsible for the overwhelming majority of the SO<sub>2</sub> pollution from Texas units subject to BART. The average SO<sub>2</sub> emission rate from Texas coal units is higher than the average SO<sub>2</sub> emission rate from most other states' coal fleets, as the following two charts indicate.

The figure below<sup>7</sup> compares the average SO<sub>2</sub> emission rate of all Texas coal units in 2017 to the corresponding emission rate for other states' coal fleets. This figure includes Texas units that have since retired. The bar in red represents the SO<sub>2</sub> emission rate of Texas coal units.

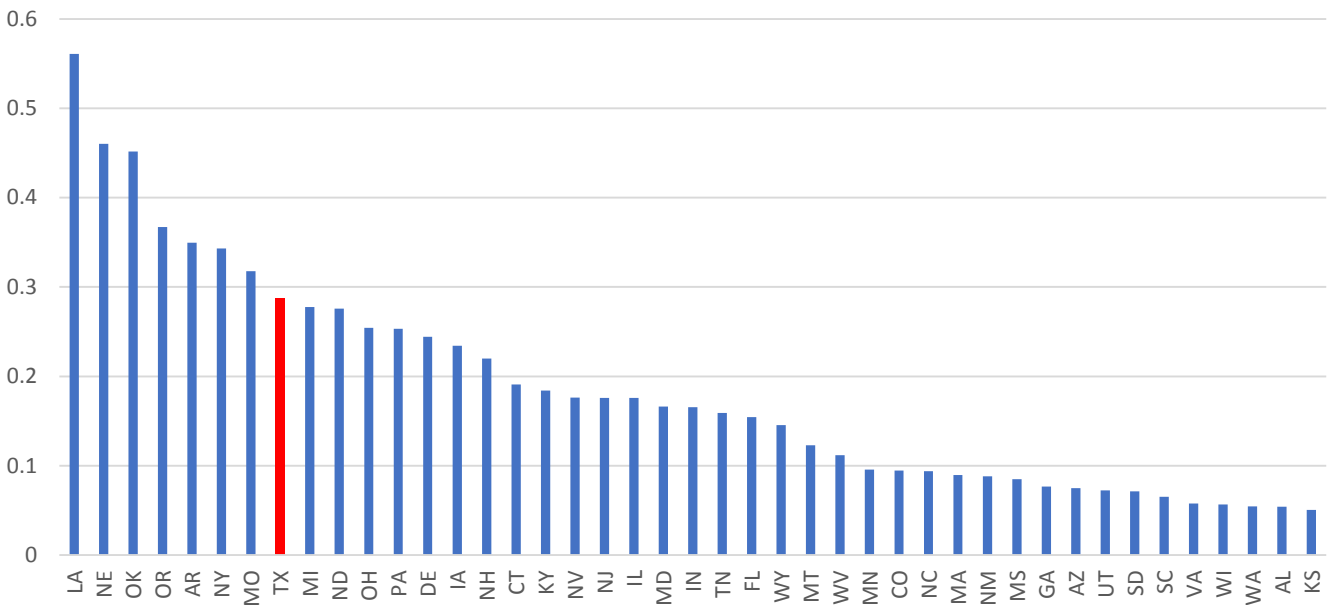
<sup>7</sup> The figure was generated using the data in Ex. 2, file "2017 AMP Emissions 2.xlsx", tab "SO<sub>2</sub> lbs-MMBtu With Retired."



## 2017 Air Markets SO2 Emissions, lbs/MMBtu

The following figures<sup>8</sup> makes the same comparison, but removes Texas units that have retired as of the date of these comments as well as JT Deely, which has announced it will retire by the end of 2018. The bar in red represents the SO<sub>2</sub> emission rate of Texas coal units.

<sup>8</sup> The figure was generated using the data in Ex. 2, file “2017 AMP Emissions 2.xlsx”, tab “SO2 lbs-MMBtu Without Retired.”



## 2017 Air Markets SO<sub>2</sub> Emissions, lbs/MMBtu

Texas' air pollution does not stop at its borders. SO<sub>2</sub> emissions from Texas cause visible air pollution in at least 15 designated "Class I"<sup>9</sup> national parks, monuments, and wilderness areas across seven states.<sup>10</sup> Among these are Big Bend National Park and Guadalupe Mountains National Park in Texas, which contain spectacular scenic views that draw visitors from around

<sup>9</sup> Areas designated as mandatory Class I Federal areas (or Class I areas for short) consist of national parks exceeding 6,000 acres, national wilderness areas and national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. See 42 U.S.C. § 7472(a).

<sup>10</sup> EPA, BART Screening TSD at 40, Docket ID No. EPA-R06-OAR-2016-0611-0005, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0005>; *see also* EPA, BART Modeling TSD at App. E, Docket ID No. EPA-R06-OAR-2016-0611-0006, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0006>. In its screening and modeling analysis, EPA evaluated the impacts of the BART-eligible electric generating units ("EGUs") in Texas at fifteen different Class I areas, including: Breton Wilderness Area in Louisiana; Big Bend and Guadalupe Mountains National Parks in Texas; Wichita Mountains National Wildlife Refuge in Oklahoma; Caney Creek and Upper Buffalo Wilderness Areas in Arkansas; Bandelier National Monument, Salt Creek, Wheeler Park, White Mountains, and Pecos Wilderness Areas, and Carlsbad Caverns National Park in New Mexico; Hercules-Glades Wilderness Area and Mingo National Wildlife Refuge in Missouri; and Great Sand Dunes National Park in Colorado. See BART Screening TSD at 73-74; BART Modeling TSD at 85-90. In its 2015 regional haze rulemaking for Texas and Oklahoma, EPA also noted pollution impacts from several of the same EGUs at San Pedro National Park, Bosque del Apache Wilderness Area, and Gila Wilderness Area in New Mexico, and Rocky Mountain National Park in Colorado. See EPA, Technical Support Document for the Oklahoma and Texas Regional Haze Federal Implementation Plans at "TX116-007-33 Vis modeling summary" (Nov. 2014), Docket ID No. EPA-R06-OAR-2016-0611-0052, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0052> [hereinafter "Reasonable Progress FIP TSD"], attached as Ex. 3.

the world. In 2017, over 440,000 people visited Big Bend,<sup>11</sup> and over 225,000 people visited Guadalupe Mountains.<sup>12</sup> The National Park Service has noted that “[t]he scenic beauty of Big Bend National Park is often spoiled by haze that obscures its many vistas.”<sup>13</sup> This haze is primarily caused by emissions of SO<sub>2</sub> and other pollutants from power plants and other anthropogenic sources.<sup>14</sup>

Sources in Texas also significantly contribute to visibility impairment in Caney Creek in Arkansas and the Wichita Mountains in Oklahoma.<sup>15</sup> Specifically, in 2002, Texas sources impacted visibility at Caney Creek and the Wichita Mountains more than Arkansas and Oklahoma sources, respectively, and were projected to do the same in 2018.<sup>16</sup> In addition, with the exception of coarse mass, Texas sources exceed the contributions of New Mexico sources in impacting the visibility of the Salt Creek Class I area in New Mexico.<sup>17</sup>

## II. THE CLEAN AIR ACT’S REGIONAL HAZE PROGRAM

Recognizing the “intrinsic beauty and historical and archaeological treasures” of national parks and wilderness areas,<sup>18</sup> Congress established “as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution.” 42 U.S.C. § 7491(a)(1). In 1990, after finding that the EPA and the states had not made adequate progress toward reducing visibility impairment in the nation’s Class I areas, Congress amended the Clean Air Act to curb emissions that may reasonably be anticipated to cause or contribute to visibility impairment at national parks and wilderness areas. *Id.* § 7492.

---

<sup>11</sup> NPS, Big Bend National Park Annual Park Recreation Visitation, *available at* [https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20\(1904%20-%20Last%20Calendar%20Year\)?Park=BIBE](https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=BIBE) (last visited Oct. 25, 2018).

<sup>12</sup> NPS, Guadalupe Mountains National Park Annual Park Recreation Visitation, [https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20\(1904%20-%20Last%20Calendar%20Year\)?Park=GUMO](https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=GUMO) (last visited Oct. 25, 2018).

<sup>13</sup> NPS, Understanding Haze in Big Bend National Park, *available at* [http://www.nps.gov/bibe/learn/nature/upload/Bravo\\_Fact\\_Sheet.pdf](http://www.nps.gov/bibe/learn/nature/upload/Bravo_Fact_Sheet.pdf), attached as Ex. 4.

<sup>14</sup> *See, e.g.*, EPA, Reasonable Progress FIP TSD at A-17, Docket ID No. EPA-R06-OAR-2014-0754-0007, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2014-0754-0007>. While some portion of the visibility impairment at Class I areas may be attributable to emissions from international sources, considerations of emissions from international sources have no role in the five-factor BART analysis for each BART source. Even in the context of reasonable progress, the fact that international emissions may cause some portion of haze at Texas’ Class I areas does not relieve Texas of the duty to require measures needed to make reasonable progress. 81 Fed. Reg. 296, 343 (Jan. 5, 2016) [hereinafter the “Reasonable Progress Rule”] (“[T]he States should not consider the presence of emissions from foreign sources as a reason not to strive to ensure reasonable progress in reducing any visibility impairment caused by sources located within their jurisdiction.”); 64 Fed. Reg. 35,714, 35,755 (July 1, 1999).

<sup>15</sup> *See* Texas SIP at Section 5.4.3 of Appendix 8-1.

<sup>16</sup> *See id.* at Appendix E to Appendix 8-1. *See also* 79 Fed. Reg. 74,818, 74,822 (Dec. 16, 2014) (noting that Texas sources cause significant visibility impairment at the Wichita Mountains Wilderness Area in Oklahoma that are “several times greater than the impact from Oklahoma’s own point sources.”).

<sup>17</sup> *See* Texas SIP at Chapter 11.

<sup>18</sup> H.R. Rep. No. 95-294, at 203-04 (1977), *reprinted in* 1977 U.S.C.C.A.N 1077, 1282.

In order to achieve the goal of natural visibility in Class I areas, Congress instructed states to submit “implementation plans” containing “emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward the national goal.” *Id.* § 7491(b)(2). As a critical, minimum element of any regional haze plan, the state (or EPA, where the state fails to do so) must require BART controls at fossil fuel-fired power plants and other major stationary sources that “may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area,” and were in existence in 1977, but were not in operation before 1962. *Id.* § 7491(b)(2)(A); 40 C.F.R. § 51.308(e).

BART is defined as “*an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility.*” 40 C.F.R. § 51.301 (emphasis added). When determining BART, the states and EPA must analyze “the best system of continuous emission control technology available” by taking into consideration five factors: (1) the costs of compliance, (2) the energy and non-air quality environmental impacts of compliance, (3) existing pollution controls at the source, (4) the remaining useful life of the source, and (5) the degree of visibility improvement from pollution controls. *Id.* § 51.308(e)(1)(ii)(A). BART compels these older, disproportionately-polluting sources to install up-to-date and cost-effective pollution controls.

Under the statute and EPA’s implementing regulations, the default approach to meeting the BART requirements is for a state to consider the five statutory factors on a case-by-case basis “for each major stationary source.” 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. § 51.308(e)(1)(ii)(A). However, EPA’s regulations allow states to adopt “an emissions trading program or other alternative measure” rather than set BART limits on a case-by-case basis, but only if the applicable standards in 40 C.F.R. § 51.308(e) for a BART alternative are met.

The fundamental requirement for a BART alternative is that it “must achieve greater reasonable progress than would be achieved through the installation and operation of BART.” 40 C.F.R. § 51.308(e)(2), (e)(2)(i)(E), (e)(3). A state may demonstrate that an alternative program makes greater reasonable progress than BART by proving that under the alternative program, the clear weight of evidence shows that the alternative would achieve greater reasonable progress than BART, *id.* § 51.308(e)(2)(i)(E), or that (1) visibility does not decline in any Class I area and (2) there is an overall improvement in visibility compared to BART at all affected Class I areas, *id.* § 51.308(e)(3)(i)-(ii).

### **III. PROCEDURAL BACKGROUND**

Despite the enormous amounts of haze pollution produced by Texas sources, both Texas and EPA have delayed for decades in developing and implementing a clean-up plan. It has been more than 40 years since Congress first announced the requirement that states develop plans to install BART at large, aging pollution sources contributing significantly to impaired scenic views, 42 U.S.C. § 7491(b)(2); over ten years since the deadline set by Congress for states to

submit such plans, 40 C.F.R. § 51.308(b); and over six years since the original deadline set forth in the governing Consent Decree for EPA to take final action on a Texas haze plan.<sup>19</sup>

### **A. Texas' Inadequate State Implementation Plan**

Texas failed to submit a haze plan to EPA by the 2007 deadline set by Congress. In 2009, EPA published an official finding to that effect. 74 Fed. Reg. 2392 (Jan. 15, 2009). In response, Texas submitted a proposed haze plan to EPA in 2009, two years after the original deadline.<sup>20</sup>

Despite Texas' outsized impact on the visibility of Class I areas inside and outside its borders, the state submitted a haze plan that did not require a single source to install controls or reduce emissions to protect visibility in Class I areas. 81 Fed. Reg. 296, 300 (Jan. 5, 2016) [hereinafter the "Reasonable Progress Rule"]. Instead, Texas relied on the emissions trading program in EPA's Clean Air Interstate Rule ("CAIR") as an alternative to making BART determinations for all eligible sources, including those at issue in this rule.<sup>21</sup> Texas relied on CAIR despite the fact that the D.C. Circuit Court of Appeals had invalidated CAIR in 2008—nearly a year *before* Texas submitted its state implementation plan ("SIP") proposal to EPA for review in March 2009. *See North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir.), *modified*, 550 F.3d 1176 (D.C. Cir. 2008). In response to the D.C. Circuit's ruling invalidating CAIR, EPA disapproved the haze plans of 14 states, including Texas, which had relied on CAIR to satisfy the BART requirements. 77 Fed. Reg. 33,642, 33,653 (June 7, 2012).

### **B. EPA's So-Called Better-than-BART Rule**

In 2011, in response to the D.C. Circuit's decision invalidating CAIR, EPA promulgated the Cross-State Air Pollution Rule ("CSAPR"), which required 28 states in the eastern U.S., including Texas, to curb power plant emissions of SO<sub>2</sub> and nitrogen oxides ("NO<sub>x</sub>") that cross state lines and significantly contribute to violations of ozone and fine-particle standards in other states. 76 Fed. Reg. 48,208 (Aug. 8, 2011). Promulgated under the Clean Air Act's "good neighbor" provision, 42 U.S.C. § 7410(a)(2)(D)(I), CSAPR allowed sources to trade emission allowances with other sources in the same or different states. 76 Fed. Reg. at 48,348. For each state regulated under CSAPR, EPA contemporaneously promulgated a federal implementation plan ("FIP") allocating that State's emission budget among its in-state electricity generating units ("EGUs"). *Id.* at 48,271, 48,284-87.

---

<sup>19</sup> Consent Decree at 3-5, *Nat'l Parks Conservation Ass'n v. EPA*, No. 11-cv-01548 (ABJ) (D.D.C. Mar. 30, 2012), ECF Doc. 21 [hereinafter, "Consent Decree"].

<sup>20</sup> *See* Texas Commission on Environmental Quality, Revisions to the State Implementation Plan (SIP) Concerning Regional Haze, Project No. 2007-016-SIP-NR (Feb. 25, 2009), *available at* [https://www.tceq.texas.gov/airquality/sip/bart/haze\\_sip.html](https://www.tceq.texas.gov/airquality/sip/bart/haze_sip.html).

<sup>21</sup> EPA issued CAIR in 2005. That rule required 28 states, including Texas, to reduce emissions of SO<sub>2</sub> and NO<sub>x</sub> that significantly contribute to, or interfere with maintenance of, the 1997 National Ambient Air Quality Standard ("NAAQS") for ozone and PM<sub>2.5</sub>. 70 Fed. Reg. 25,162 (May 12, 2005). EPA subsequently determined that those states could also rely on CAIR's cap-and-trade emissions trading program to meet their obligations under the Regional Haze Rule to address BART for EGUs. 70 Fed. Reg. 39,104 (July 6, 2005).

In 2012, EPA published a rule, 77 Fed. Reg. 33,642 (June 7, 2012) (the so-called “Better-than-BART” Rule), which exempted EGUs covered by the CSAPR trading program from meeting source-specific BART requirements under the Regional Haze Rule. In support of the Better-than-BART Rule, EPA provided computer modeling purporting to show that CSAPR satisfied both criteria of the agency’s test for a valid BART alternative, namely, that when compared to EPA’s “presumptive” BART emission limits, implementation of CSAPR (1) would not cause visibility to decline in any Class I area, and (2) would lead to an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas, *see* 40 C.F.R. § 51.308(e)(3). As part of that modeling analysis, EPA also conducted a “Sensitivity Analysis,” which purported to demonstrate that CSAPR remained a valid “better-than-BART” alternative despite subsequent increases in the emission budgets for Texas and Georgia.<sup>22</sup> In that Sensitivity Analysis, EPA claimed that CSAPR would remain a valid alternative to BART so long as SO<sub>2</sub> emissions from Texas plants remained below 317,000 tons per year.<sup>23</sup>

In 2017, in response to the D.C. Circuit remand of the SO<sub>2</sub> CSAPR budgets for Texas, EPA withdrew the FIP requiring Texas sources to participate in CSAPR for SO<sub>2</sub>. 82 Fed. Reg. 45,481 (Sept. 29, 2017). In the same rule, EPA also purported to update its “Better-than-BART” analysis in an attempt to show that removing Texas from CSAPR would not undermine the agency’s claim that CSAPR was better than BART. EPA began by noting that requiring Texas sources to install BART would reduce SO<sub>2</sub> emissions by between 127,300 and 177,800 tons relative to emissions under CSAPR. *Id.* at 45,492, 45,494; *see also* 81 Fed. Reg. 78,954, 78,963 (Nov. 10, 2016). EPA argued that because source-specific BART would reduce emissions so much more than CSAPR in Texas, removal of Texas would make CSAPR even better than BART in the states remaining in CSAPR. Specifically, EPA concluded that removing Texas sources from CSAPR and requiring them to install BART controls would “improv[e] projected air quality in this scenario relative to projected air quality in both the Nationwide BART scenario and the base case scenario (in which the projected SO<sub>2</sub> emissions from Texas EGUs would not change).” 81 Fed. Reg. at 78,963. In other words, EPA’s conclusion that CSAPR would still improve visibility more than BART in the areas outside of Texas that remain subject to CSAPR hinged on the fact that for Texas, source-specific BART would improve visibility more than CSAPR would.

### **C. EPA’s Obligation to Address Texas’ Regional Haze Requirements**

The Clean Air Act required EPA to approve or disapprove Texas’ regional haze plan within 18 months of submittal. 42 U.S.C. § 7410(k). By 2011, EPA still had not taken final action on Texas’ 2009 submittal. In August 2011, several organizations sued EPA, and on March 30, 2012, the District Court entered a consent decree requiring EPA to take final action on the Texas regional haze plan by a date certain. *See* Consent Decree, *Nat’l Parks Conservation Ass’n v. EPA*, No. 11-cv-01548 (ABJ) (D.D.C. Mar. 30, 2012), ECF Doc. 21 [hereinafter “Consent Decree”].

---

<sup>22</sup> EPA, Memorandum, Sensitivity Analysis Accounting for Increases in Texas and Georgia Transport Rule State Emissions Budgets (May 29, 2012), Docket ID No. EPA-HQ-OAR-2011-0729-0323, *available at* <https://www.regulations.gov/document?D=EPA-HQ-OAR-2011-0729-0323>.

<sup>23</sup> 82 Fed. Reg. 48,324, 48,353 (Oct. 17, 2017).



In December 2015, EPA issued a final rule approving in part and disapproving in part Texas' regional haze plan, as well as portions of Oklahoma's "interconnected" plan. *See* 81 Fed. Reg. at 296, 346. As required by the Clean Air Act, 42 U.S.C. § 7410(c)(1), EPA issued a partial federal plan to correct the deficiencies in Texas's SIP relating to the reasonable progress elements of the Regional Haze Rule. 81 Fed. Reg. at 297. EPA explicitly declined, however, to take final action concerning Texas' BART determinations for EGUs. *See, e.g., id.* at 346. Nonetheless, EPA determined that as a result of the D.C. Circuit's remand of the Texas CSAPR budgets, *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118 (D.C. Cir. 2015) [hereinafter, "*Homer City II*"], neither EPA nor Texas could rely on CSAPR as an alternative to BART for Texas EGUs. 81 Fed. Reg. at 302.<sup>24</sup>

In July 2016, however, the Fifth Circuit stayed EPA's disapproval and promulgation of a FIP addressing the reasonable progress portions of Texas's Regional Haze plan. *See Texas v. EPA*, 829 F.3d 405 (5th Cir. 2016). The Fifth Circuit subsequently granted EPA's motion requesting a voluntary remand of the rule so that the agency could reconsider its reasonable progress determinations, which are distinct from the BART requirements at issue here.

#### **D. The January 2017 BART Proposal**

In January 2017, EPA published a BART proposal for Texas electric generating units. *See* 82 Fed. Reg. 912. EPA's proposal carefully and methodically reviewed BART-eligible units for pollution controls and analyzed each of the five statutory BART factors, consistent with EPA regulations and guidance. *See id.* at 921-47 (citing numerous Technical Support Documents such as the BART Screening TSD, BART FIP TSD, Cost TSD, BART Modeling TSD).

In addition to EPA's voluminous technical analyses, the agency solicited public comments for four months, 82 Fed. Reg. 11,516 (Feb. 24, 2017), and held a public hearing in Austin, Texas on the proposed rule, 82 Fed. Reg. at 912. During the comment period, over 3,600 citizens from Texas, Oklahoma, New Mexico, and Arkansas submitted comments to EPA supporting a final Texas BART Rule as strong as the proposal. Because EPA had not proposed any trading program whatsoever for Texas, nor given any indication that it was considering one in the proposal, Petitioners could not and did not comment on specific defects of the trading program EPA finalized in October 2017.

EPA estimated that its proposed source-specific FIP would reduce harmful SO<sub>2</sub> emissions by approximately 194,000 tons per year,<sup>25</sup> which would produce cleaner air in national parks,

---

<sup>24</sup> EPA formally issued its proposal to withdraw its federal plan to include Texas in the CSAPR emissions trading program in November 2016, and finalized the withdrawal in September 2017. 81 Fed. Reg. 78,954; 82 Fed. Reg. 45,481. NPCA and Sierra Club petitioned for reconsideration and judicial review of a separate aspect of that rulemaking, which determined that CSAPR remains better than BART for the states remaining in the program, despite the withdrawal of Texas. *See NPCA and Sierra Club, Petition for Partial Reconsideration of Interstate Transport of Fine Particulate Matter: Revision of Federal Implementation Plan Requirements for Texas; Final Rule*; 82 Fed. Reg. 45,481 (Sept. 29, 2017); EPA-HQ-OAR-2016-0598; FRL-9968-46-OAR (Nov. 28, 2017); Petition for Review, *Nat'l Parks Conservation Ass'n v. EPA*, No. 17-1253 (D.C. Cir. Nov. 28, 2017).

<sup>25</sup> EPA, Technical Support Document for the Texas Regional Haze BART Federal Implementation Plan at 2 (Dec. 2016), Docket ID No. EPA-R06-OAR-2016-0611-0004, *available at*

wilderness areas, and other areas throughout Texas and surrounding states. At the time of the proposal, twelve of the units proposed for source-specific BART limits had operated for decades without installing any post-combustion controls for SO<sub>2</sub>.<sup>26</sup> EPA's analysis in the January 2017 proposal indicated that new scrubbers would dramatically improve visibility in a cost-effective manner and meet the other BART factors. 82 Fed. Reg. at 926-38. EPA's analysis also showed that scrubber upgrades at units which already had older scrubbers would significantly improve visibility for approximately \$1,000 per ton or less, which is more cost-effective than most SO<sub>2</sub> BART controls for EGUs.<sup>27</sup>

The proposed BART limits would have resulted in visibility, public health, and economic benefits for the entire region. Dr. George Thurston, a leading public health expert, submitted evidence that the proposed rule would prevent tens of thousands of asthma attacks, 677 premature deaths, more than 70,000 lost or limited work days every year, and would save more than \$6.7 billion in public health and lost productivity costs annually.<sup>28</sup> These figures were “conservatively estimate[d].”<sup>29</sup> In Oklahoma alone, these benefits total over \$771 million *each year*, including the benefits of preventing over 2,100 asthma attacks, 78 deaths, and more than 9,400 missed work days every year. The annual benefits to Oklahoma City are valued at more than \$185 million, and to Tulsa, at more than \$156 million. In Dallas, the pollution reductions would save 62 lives per year. The total public health-related benefits for Dallas are valued at over \$623 million. In Houston, the pollution reductions would save 60 lives per year, with the total health-related benefits valued at over \$606 million.<sup>30</sup>

#### **E. EPA Finalizes the Trading Rule Without Providing Prior Notice or an Opportunity to Comment on the Trading Rule**

After the change in Administration, and three weeks before the consent decree deadline to issue a final BART rule for Texas, EPA sought a 16-month extension to allow Texas time to

---

<https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0004> [hereinafter “BART FIP TSD”]. EPA explains in its BART FIP TSD (p. 2, n.7) that the 194,000 tons per year figure is the “[s]um of estimated reductions due to all proposed controls calculated from a baseline of the 2011-2015 five year average of the SO<sub>2</sub> annual emissions, excluding the maximum and minimum values.” We recognize that the Trading Rule finalized in 2017 and proposed here use a different emission baseline and apply to different sources than the source-specific BART proposal.

<sup>26</sup> Fayette units 1 and 2 recently installed wet scrubbers. Of the 14 units for which EPA proposed to set BART limits based on the use of new scrubbers, only the two Fayette units have already installed scrubbers.

<sup>27</sup> Comments of National Parks Conservation Association and Sierra Club at 34-38 (May 5, 2017), Docket ID No. EPA-R06-OAR-2016-0611-0083, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0083> [hereinafter “NPCA/SC Comments”], attached as Ex. 5.

<sup>28</sup> Report of George D. Thurston Regarding the Public Health Benefits of EPA's Proposed Rulemaking at 18 (May 4, 2017), Docket ID No. EPA-R06-OAR-2016-0611-0072, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0072>.

<sup>29</sup> *Id.* at 17.

<sup>30</sup> The public health benefits of the January 2017 proposed BART Rule were calculated in the spring of 2017, based on conditions that existed at the time. We have not updated the analysis to account for subsequent changes, such as power plant retirements. However, implementing the January 2017 BART Rule, in combination with the recent retirement of several BART sources, would result in even greater visibility and public health benefits than Dr. Thurston calculated.

develop a SIP that would create a “flexible” SO<sub>2</sub> pollution intrastate trading program, rather than place any emission limits on the plants identified as subject-to-BART in the proposal.<sup>31</sup> EPA further represented that it had entered into a Memorandum of Agreement with Texas under which Texas would develop a state plan incorporating the trading scheme, which EPA would then approve.<sup>32</sup> Agreeing with Petitioners, the district court rejected EPA’s request for more time, noting that “Texas has had ample time to develop, submit, and negotiate a compliant SIP if that was its actual preference.”<sup>33</sup> Thus, EPA was required to issue a final BART rule by the consent decree’s September 9, 2017 deadline (later extended to September 30 to accommodate Hurricane Harvey response activities).

The Trading Rule EPA finalized in October 2017 bore no resemblance to what the agency had proposed in January 2017. *See generally* 82 Fed. Reg. 48,324. Instead of finalizing source-specific, technology-based pollution limits for BART sources, EPA created an entirely new trading program that applies only to Texas sources. Having abandoned the source-specific proposal in favor of a BART alternative, EPA concluded it was “not necessary to respond” to comments on the proposed source-specific rule. *Id.* at 48,332, 48,333. The emissions trading scheme adopted in the October 2017 Trading Rule occupied 17 pages of single-spaced text in the Federal Register, 82 Fed. Reg. 38,364-80, yet not a single sentence of the final rule appeared in the January 2017 proposed rule. The newly invented trading scheme would not have resulted in any emission reductions because as EPA concedes, the total SO<sub>2</sub> credits available under the Trading Rule would have exceeded 2016 emissions, 82 Fed. Reg. at 48,358, 48,359, 48,360. In fact, the total credits available would have exceeded the total SO<sub>2</sub> emissions that the covered sources emitted in 2015, 2016, and 2017.<sup>34</sup>

## **F. EPA Proposes to Affirm the Trading Rule**

In response to EPA abruptly abandoning its January 2017 proposal in favor of a trading scheme that was not even mentioned in the proposed rule, EDF, NPCA, and Sierra Club petitioned EPA to reconsider the Trading Rule.<sup>35</sup> EPA has still not issued a formal decision to grant or deny the reconsideration petition.

---

<sup>31</sup> EPA, Memorandum in Support of Motion to Amend the Consent Decree, *Nat’l Parks Conservation Ass’n v. Pruitt*, No. 11-cv-01548 (ABJ) (D.D.C. Aug. 18, 2017), ECF Doc. No. 93-1.

<sup>32</sup> 82 Fed. Reg. at 48,327.

<sup>33</sup> Order at 7, *Nat’l Parks Conservation Ass’n v. EPA*, , No. 11-cv-01548 (ABJ), (D.D.C. Aug. 31, 2017), ECF Doc. No. 96.

<sup>34</sup> *See* the file “Trading Rule Unit Emissions.xlsx,” attached as Ex. 6. Assuming a cap of 248,393 tons and the inclusion of the retired units, the cap would have allowed growth, based on any year’s emissions from 2015 - 2017, inclusive. If the retired units were removed from the program, a cap of 248,393 would have allowed growth based on any year’s emissions from 2011 - 2017, inclusive. Should the cap expand to 293,104 tons (due to growth in the Supplemental Allowance Pool) and the retired units were removed from the program, growth would have been allowed based on at least the last ten years of emissions data.

<sup>35</sup> *See* NPCA, Sierra Club, and EDF, Petition for Reconsideration of Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan (Oct. 17, 2017); EPA-R06-OAR-2016-0611; FRL-9969-07-Region 6 (Dec. 15, 2017), Docket ID No. EPA-R06-OAR-2016-0611-0135, available at <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0135>. We incorporate by reference the petition for reconsideration, to which EPA has not provided a formal response.

On August 27, 2018, EPA proposed to affirm the same Trading Rule, 83 Fed. Reg. 43,586, that it had issued in October 17, 2017, 82 Fed. Reg. 48,324. Despite representing to the Court that the Governor of Texas had made a “firm commitment to ‘bring the full weight and resources of the State of Texas to bear on’ the development of an approvable SIP revision,”<sup>36</sup> EPA now states that “in the months since EPA promulgated the trading program FIP, Texas has not met its commitment to provide a SIP.” 83 Fed. Reg. at 43,587. Furthermore, it does not appear that Texas is even working on a SIP.

It is unclear why it took EPA nearly a year to issue a proposal that features only an affirmation of the Trading Rule the agency issued in October 2017. Indeed, it appears that EPA has not changed a single word of the regulatory text of the Trading Rule, because the current proposal does not include any regulatory text at all. Presumably, EPA is proposing to retain all of the regulatory provisions in the CFR that it finalized in October 2017. Thus, instead of using the better part of a year to reconsider the substance of the Trading Rule, EPA appears to be engaging in a charade under which it accepts comments that it has no intention of seriously considering, in an attempt to paper over the egregious violation of notice and comment requirements in the October 2017 Trading Rule.

EPA has not fixed any of the substantive deficiencies in the Trading Rule that we identified in the petition for reconsideration we filed on December 15, 2017. In particular, it remains true that the Trading Rule would not result in greater reasonable progress than source-specific BART. Indeed, the Trading Rule would not result in any reasonable progress at all relative to the status quo, because as we demonstrate in these comments, the Rule authorizes an increase in SO<sub>2</sub> emissions relative to actual emissions from covered sources in 2015, 2016, and 2017. The maximum allocations available under the Trading Rule are 293,104 tons. 83 Fed. Reg. at 43,601. Actual SO<sub>2</sub> emissions from sources covered by the Trading Rule were 236,754 tons in 2015, 218,291 tons in 2016, and 245,870 tons in 2017. *Id.* at 43,591.<sup>37</sup>

Moreover, it is not just a theoretical possibility that sources would take advantage of the ability to increase emissions under the Trading Rule. Sources covered by the Trading Rule increased actual emissions by over 27,000 tons from 2016 to 2017, and implementation of the Trading Rule would not have prevented this increase.<sup>38</sup> The last thing EPA should be doing is authorizing further emissions increases. In contrast to the emissions increase that is authorized by the Trading Rule, source-specific BART would reduce emissions relative to emissions in 2017 and prior years. EPA previously estimated that, relative to 2011-2015 five-year averages (excluding minimum and maximum years), source-specific BART would reduce emissions “by approximately 194,000 tons of SO<sub>2</sub>, a larger reduction than projected under CAIR or CSAPR.”<sup>39</sup>

---

<sup>36</sup> EPA, Memorandum in Support of Motion to Amend the Consent Decree, *Nat’l Parks Conservation Ass’n v. Pruitt*, No. 11-cv-01548, Doc. 93-1 at 14 (D.D.C. motion filed Aug. 18, 2017).

<sup>37</sup> See also the file “Trading Rule Unit Emissions.xlsx,” attached as Ex. 5.

<sup>38</sup> See 83 Fed. Reg. at 43,600, tbl. 7.

<sup>39</sup> BART FIP TSD at 2. Some units have retired since EPA calculated the emissions reductions from source-specific BART, and more recent baselines are slightly different. As a result, if EPA finalized the proposal it issued in January 2017, the emissions reductions from requiring source-specific today could be lower than the 194,000 tons that EPA calculated. However, we noted in comments on the January 2017 proposal that additional sources should be subject to BART, and that the limits for some BART sources should be lower. See NPCA/SC Comments. As

## ARGUMENT

### **I. THE TRADING RULE IS UNLAWFUL BECAUSE IT WAS PROMULGATED WITHOUT FOLLOWING NOTICE AND COMMENT REQUIREMENTS.**

In the October 2017 Trading Rule, EPA adopted a FIP that consists of an intrastate pollution trading program for certain electric generating units in Texas. This Rule violates the Clean Air Act because, among other reasons, it was issued without following the Act's procedural requirements for promulgating a FIP. Under the Act, a FIP can be promulgated only by following public notice and comment procedures. *See* 42 U.S.C. § 7607(d)(1)(B), (d)(2)-(6). EPA, however, bypassed these requirements in promulgating the Trading Rule: the agency adopted an entirely new plan, one that never went through the notice and comment process. As explained below, EPA's current proposal to affirm the October 2017 Trading Rule does not cure EPA's violation of the notice and comment requirements.

#### **A. The Clean Air Act's Notice and Comment Requirements**

Under the Clean Air Act, a FIP cannot be adopted without following the public notice and comment procedures set forth in 42 U.S.C. § 7607(d)(1)(B), (d)(2)-(6). Among other things, EPA must first publish a proposed rule in the Federal Register that is accompanied by a statement of basis and purpose and specifies a comment period. *Id.* § 7607(d)(3). The statement of basis and purpose must include a summary of the factual data on which the proposed rule is based, the methodology used in obtaining and analyzing the data, and the major legal interpretations and policy considerations underlying the proposed rule. *Id.* EPA must allow any person to submit comments, and in addition, shall give interested persons an opportunity for the oral presentation of data, views, or arguments. *Id.* § 7607(d)(5). These and other public participation requirements in § 7607(d) build on those in the Administrative Procedure Act, and are even more protective of the public's right to notice and comment.

#### **B. The Trading Rule Circumvented the Clean Air Act's Notice and Comment Procedures**

When EPA promulgated the Trading Rule in October 2017, the agency did not follow the Clean Air Act's notice and comment requirements with respect to the rule's central component – the newly invented intrastate trading program. Because EPA never proposed or provided for public comment on this trading scheme, the Trading Rule was not lawfully promulgated under the Clean Air Act.

In the January 2017 proposed rule, EPA established source-specific SO<sub>2</sub> emission limits that would require the installation and operation of modern SO<sub>2</sub> controls or upgraded controls for Texas generating units that are subject to the Act's mandate for BART. *See generally* 82 Fed.

---

such, if EPA agreed with some or all of our comments, the emissions reductions from source-specific BART could be even greater than 194,000 tons of SO<sub>2</sub> before accounting for the units that have retired since EPA calculated the impacts of source-specific BART.

Reg. 912. The BART proposal's SO<sub>2</sub> emission limits would have cut haze-causing pollution from Texas power plants by approximately 194,000 tons compared to recent emission levels.<sup>40</sup>

But in the Trading Rule, EPA abandoned its proposal to require source-specific SO<sub>2</sub> limits, and instead adopted an entirely new intrastate emissions trading program that did not appear in the proposal at all. In contrast to the 2017 proposed rule, the Trading Rule would not result in any reduction in haze-causing pollution. In fact, the Trading Rule would allow a potential *increase* of 47,234 tons of SO<sub>2</sub> above 2017 levels.<sup>41</sup> By adopting a trading program that was never proposed, EPA plainly failed to follow the rulemaking procedures required by the Clean Air Act.

Moreover, any suggestion that the October 2017 Trading Rule was a “logical outgrowth” of the January 2017 BART proposal would be meritless. The logical outgrowth doctrine applies where a rule merely clarifies its proposal, or where the agency put commenters on notice that it was considering approaches different from the proposal.<sup>42</sup> Here, the logical outgrowth doctrine does not apply because (i) the intrastate trading scheme is an entirely new program that bears no resemblance to the January 2017 BART proposal, and (ii) EPA provided no notice that it was considering an intrastate trading program instead of source-specific SO<sub>2</sub> emission limits.

EPA cannot credibly claim that the October 2017 trading program was just a clarification of the January 2017 proposed rule. The central thrust of the BART proposal was to require source-specific pollution limits based on the best available retrofit technology for each source. In order to adopt its wholly different trading program, EPA had to add dozens of pages of regulatory and explanatory text that appeared nowhere in the 2017 BART proposal. *See, e.g.*, 82 Fed. Reg. at 48,353-61, 48,363-80. And the Trading Rule is dramatically different in substance from the BART proposal. So much so, in fact, that EPA dismissed many comments on the proposed source-specific rule as no longer relevant<sup>43</sup> and, therefore, “not necessary to respond” to. *Id.* at 48,333. Moreover, instead of requiring limits for each of the relevant plants reflective of the BART controls, which EPA anticipated would reduce SO<sub>2</sub> emissions by approximately 194,000 tons per year below recent levels, EPA is instituting a trading program in which the emissions cap is above the plants’ 2017 emissions.<sup>44</sup>

---

<sup>40</sup> BART FIP TSD at 2.

<sup>41</sup> Under the Trading Rule, the maximum annual allowances are 293,104 tons, and actual emissions in 2017 were 245,870 tons of SO<sub>2</sub>. *See* 83 Fed. Reg. at 43,591 n.32, 43,601.

<sup>42</sup> *See, e.g., Daimler Trucks N. Am. v. EPA*, 737 F.3d 95 (D.C. Cir. 2013) (no logical outgrowth where proposal offered no indication agency was considering change that was ultimately adopted, and where change went beyond mere clarification).

<sup>43</sup> *See, e.g., EPA, Modeling Response to Comments* at 19, Docket ID No. EPA-R06-OAR-2016-0611-0088, available at <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0088> (noting that because EPA is not finalizing the source-specific rule it had proposed, “comments concerning the emissions utilized in our subject to BART modeling for the sources participating in the SO<sub>2</sub> trading program are no longer relevant”); *id.* at 28 (comment raised by company regarding the BART proposal “is no longer relevant” given the trading plan EPA adopted).

<sup>44</sup> Note: the projected reduction of 194,000 tons of SO<sub>2</sub> emissions in the BART proposal is relative to a 2011-15 baseline. *See* BART FIP TSD at 2 n.7. Because the 47,234-ton figure mentioned above is a comparison between the Trading Rule’s allowance emissions and 2017 emissions, that figure cannot be directly compared to the 194,000-ton figure.

The record also demonstrates that EPA provided no notice of its intrastate trading program. The January 2017 BART proposal contained no mention whatsoever of the trading program EPA is now pursuing, much less a summary of the factual data and new legal interpretations on which EPA ultimately relied to attempt to justify that program. Nor was there even the slightest suggestion in the proposed rule that EPA might consider adopting an intrastate trading program for Texas in lieu of the source-specific retrofit controls that the proposal set out in detail with extensive justification. *See* 82 Fed. Reg. 912. Indeed, the word “trading” appears nowhere in the BART proposal at all. Accordingly, EPA’s adoption of an entirely new Trading Rule, which was not even suggested in the proposal, plainly does not qualify as a logical outgrowth of its January 2017 proposal.<sup>45</sup>

Any attempt to characterize the Trading Rule as a logical outgrowth of the December 2014 proposed rule, 79 Fed. Reg. 74,818, would also fail. For one thing, that rulemaking was completed before the instant rulemaking even commenced. The BART provisions in the December 2014 proposed rule were abandoned due to *Homer City II*, and EPA otherwise took final action on that proposed rule in December 2015. *See* 81 Fed. Reg. at 298-307 (summary of final actions). Notably, when EPA opened up a public comment period following its promulgation of the January 2017 BART proposal, the agency did not invite comments on the since-abandoned December 2014 proposal. Instead, EPA sought comments on the proposal it had just released – i.e., the January 2017 proposed rule.<sup>46</sup> And, regardless of the lack of overlap between the December 2014 and January 2017 proposals, EPA did not mention or seek comment on an intrastate trading program in the December 2014 proposal. Consequently, any logical outgrowth argument based on that proposal would be baseless.

Critically, the fact that members of industry submitted comments advocating for a trading program before EPA promulgated its Trading Rule has no bearing on whether the rule was a “logical outgrowth” of EPA’s 2014 BART proposal. In its Trading Rule, EPA implied that its adoption of the trading program was justified because two Texas state agencies and two power companies filed comments advocating such an approach. 82 Fed. Reg. at 48,327. But such comments do not render the Trading Rule a “logical outgrowth” of EPA’s 2014 proposal because they did not provide notice to the public that the *agency itself* was proposing or even considering a trading program. Indeed, the D.C. Circuit has “made clear that the fact that some commenters actually submitted comments addressing the final rule is of little significance. The agency must

---

<sup>45</sup> *Env’tl. Integrity Project v. EPA*, 425 F.3d 992, 996 (D.C. Cir. 2005) (logical outgrowth doctrine did not apply where rule was “surprisingly distant” from proposal, as the court has “refused to allow agencies to use the rulemaking process to pull a surprise switcheroo on regulated entities”); *Int’l Union v. Mine Safety & Health Admin.*, 407 F.3d 1250, 1259-60 (D.C. Cir. 2005) (“The ‘logical outgrowth’ doctrine does not extend to a final rule that is a brand new rule . . . nor does it apply where interested parties would have had to divine the Agency’s unspoken thoughts.”).

<sup>46</sup> That the December 2014 proposal was part of a different rulemaking process is further confirmed by the fact that EPA did not include that proposal or any of the supporting technical analysis in this docket “on the date of the publication of the proposed rule,” as required by the Clean Air Act. 42 U.S.C. § 7607(d)(3); *see also id.* § 7607(d)(4)(B)(ii) (all drafts of the proposed rule “shall be placed in the docket no later than the date of proposal of the rule”). Thus, if the Trading Rule had been a logical outgrowth of this earlier proposal (which it was not), the Rule would necessarily violate these Clean Air Act provisions.

itself provide notice of a regulatory proposal.” *Ass’n of Private Sector Colls. v. Duncan*, 681 F.3d 427, 462 (D.C. Cir. 2012) (citation omitted) (internal quotation marks omitted).

Nor is EPA’s complete disregard of notice and comment procedures cured by the presence in the record of comments against “relying on a BART alternative such as the C[ross] S[tate] A[ir] P[ollution] R[ule] trading program.” NPCA/SC Comments at 17. While EPA certainly should have considered these comments and responded to them in the context of the Trading Rule, NPCA and Sierra Club lacked an opportunity to comment on information that only became apparent in the Trading Rule itself, such as the actual consideration of a trading program as a BART alternative to satisfy BART, the specifics of EPA’s intrastate trading scheme or the absence of any coherent rationale for adopting that scheme. Indeed, NPCA and Sierra Club submitted comments on BART alternatives *solely in response to industry comments*—those comments were not based on, or responding to, any actual or implied proposal by EPA itself to adopt such an alternative. Simply put, responding to *industry* comments about *industry’s desire* for a trading program is no substitute for having notice and opportunity to comment on *EPA’s decision* to adopt a trading program.

Moreover, EPA entirely failed to address NPCA and Sierra Club’s response to industry comments on a trading program. In so doing, EPA violated the Clean Air Act’s requirement that a rule “be accompanied by a response to each of the significant comments, criticisms, and new data submitted in written or oral presentations during the comment period.” 42 U.S.C. § 7607(d)(6)(B). Specifically, EPA ignored NPCA and Sierra Club comments that, contrary to industry’s claims, CSAPR is not better than BART. EPA had a clear duty to respond to such comments, especially given the Trading Rule’s implicit reliance on CSAPR in purporting to justify the trading scheme.<sup>47</sup> But instead, EPA disregarded NPCA and Sierra Club comments as beyond the scope of its rulemaking.<sup>48</sup> EPA’s abdication of its statutory duty represents an independent violation of the Clean Air Act.

---

<sup>47</sup> See, e.g., 82 Fed. Reg. at 48,330 (“The BART alternative is designed to achieve SO<sub>2</sub> emission levels from Texas sources similar to the SO<sub>2</sub> emission levels that would have been achieved under CSAPR.”); *id.* (“Accordingly, by the measure of CSAPR better than BART, the SO<sub>2</sub> BART FIP for Texas’ BART- eligible EGUs participating in the trading program will achieve greater reasonable progress than BART with respect to SO<sub>2</sub>.”).

<sup>48</sup> See, e.g., *Id.* at 48,338 (“This comment in its discussion of the 2016 sensitivity analysis and other particulars raises issues that are addressed in the record for that separately finalized action. This comment falls outside of the scope of our action here.”); *id.* at 48,335; EPA, Legal Response to Comments at 6 (Sept. 2017), Docket ID No. EPA-R06-OAR-2016-0611-0087 [hereinafter “Legal RTC”], available at <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0087> (“The legal and technical determinations of the CSAPR-Better-than-BART rule are subject to judicial review under existing challenges and a separate administrative record, as indicated by the comment. Any challenges raised with regard to the present rulemaking and outside that litigation may be time-barred or directed to the wrong forum. As such, we do not believe that the incorporation of arguments from a brief filed with the D.C. Circuit concerning a separate regulatory determination warrants responses here, in this rulemaking, and that to offer responses here would suggest some basis for collateral, time-barred arguments that are out of the scope of this action.”); Legal RTC at 8 (“With regard to the application of CSAPR SO<sub>2</sub> budgets in the finalized BART alternative, we note that the alternative does not ‘set a higher (more lenient) SO<sub>2</sub> budget for Texas’ and it does not authorize sources ‘to emit more SO<sub>2</sub> than they were authorized to emit under the original CSAPR rule.’ Thus, the assumptions that the comment suggests would be no longer valid remain valid. Because our allocations conform to the original CSAPR Rule, we decline to reanalyze whether CSAPR makes greater reasonable progress than BART with our SO<sub>2</sub> BART alternative.”).



### C. Proposing to “Affirm” the Trading Rule Cannot Cure EPA’s Notice and Comment Violations.

EPA now proposes to “affirm” the Trading Rule in an attempt to comply with the Clean Air Act’s notice and comment requirements. But EPA’s 11<sup>th</sup> hour efforts to solicit comments on only *some* elements of the Trading Rule cannot cure the rule’s procedural deficiencies because the opportunity for public comment is both insufficient and too late. At this point, the only legally sufficient remedy is for EPA to withdraw its defective Trading Rule and replace it with a long overdue, compliant FIP.

The purpose of notice and comment is to provide the public with an opportunity to influence agency rulemaking. *See, e.g., U.S. Steel Corp. v. EPA*, 595 F.2d 207, 215 (5th Cir. 1979); *Nat’l Tour Brokers Ass’n v. U.S.*, 591 F.2d 896, 902 (D.C. Cir. 1978). This opportunity is meaningful only when rules remain in the formative stage and agencies are “more likely to give real consideration to alternative ideas.” *U.S. Steel Corp.*, 595 F.2d at 214 (cited with approval in *U.S. v. Johnson*, 632 F.3d 912, 929 (5th Cir. 2011)); *see also Nat’l Tour Brokers Ass’n*, 591 F.2d at 902 (purpose of notice and comment is to ensure public can influence agency decision-making while rules are still in the “formative or ‘proposed’ stage”).

Agencies fail to provide an adequate opportunity to influence the rulemaking process when they solicit public comments on rules that they have already labeled “final.” As the D.C. Circuit explained, agencies are likely to become “more close-minded and defensive” once they “put [their] credibility on the line in the form of ‘final’ rules.” *Nat’l Tour Brokers Ass’n*, 591 F.2d at 902. In other words, once an agency has sunk costs into a rule and declared it final, the public loses any legitimate chance to influence that rule later on.

Because the opportunity to influence agency rulemaking lies at the core of notice and comment procedures, agencies cannot cure notice and comment defects by merely soliciting post-promulgation comments. *U.S. Steel*, 595 F.2d at 214 (EPA overlooked “crucial difference between comments before and after rule promulgation”); *McLouth Steel Prods Corp. v. Thomas*, 838 F.2d 1317, 1323 (D.C. Cir. 1988) (“Consideration of comments as a matter of grace is not enough.”). Indeed, the Fifth Circuit rejected EPA’s attempt to do precisely that in *U.S. Steel Corp. v. EPA*. There, the Fifth Circuit declared invalid an EPA rule that was promulgated without opportunity for public comment *despite* the fact that EPA later accepted comments and re-promulgated the rule. *U.S. Steel Corp.*, 595 F.2d at 214-15; *see also Johnson*, 632 F.3d at 929 (“Nor does accepting post-promulgation comments excuse compliance with APA procedures.”).

When an agency seeks to save a rule that suffers from a notice and comment violation, that agency bears the burden of proving that the violation did not prejudice the public. *U.S. Steel Corp.*, 595 F.2d at 215; *see also Advocates for Highway & Auto. Safety v. Fed. Highway Admin.*, 28 F.3d 1288, 1292 (D.C. Cir. 1994) (Agency must make “compelling showing” that later notice cured defects in earlier notice). “Absence of such prejudice must be clear” for the violation to be considered “harmless” and the rule to be upheld. *U.S. Steel Corp.*, 595 F.2d at 215. When the

---

In failing to respond to Petitioners’ comments, EPA also reneged on its commitment to “provide written responses to all significant oral and written comments received on our [BART] proposal.” 82 Fed. Reg. at 912.

rule at issue involves “complex regulatory decision[s],” notice and comment violations will rarely be harmless. *Johnson*, 632 F.3d at 932.

EPA cannot now cure the notice and comment defects in its Trading Rule because the opportunity for public comment is insufficient and too late. EPA declared its Trading Rule as “final” on October 17, 2017. 82 Fed. Reg. 48,324. As stated above, that rule was procedurally defective under the Clean Air Act’s notice and comment provisions because it adopted a trading program that EPA never proposed. Now, EPA is soliciting public comments on only *some* elements of a rule that it has considered “final” for nearly a year, leaving the public with *no* opportunity to comment on certain elements of the Trading Rule and *no meaningful* opportunity to comment on others.

After EDF, NPCA, and Sierra Club filed a Petition for Reconsideration demonstrating that the Trading Rule violated notice and comment requirements, EPA could have rescinded or withdrawn the Trading Rule. However, EPA has not done so, and has kept the October 2017 Trading Rule in effect, even while it purports to be open to public comments on the final rule.

EPA’s late-day request for public comments fails to provide the public with any real opportunity to influence EPA’s decision-making. At this point in the rulemaking process, EPA has already “put its credibility on the line” by proclaiming the Trading Rule as “final” for the past year. *See generally* 82 Fed. Reg. 48,324 (purporting to “finalize” EPA’s Trading Rule). Indeed, even in EPA’s tardy request for comments, EPA proposes to reaffirm its “final” Trading Rule without soliciting comments on entire sections of its rule. 83 Fed. Reg. at 43,586 (proposing to affirm its “final rule” and soliciting comments on only “certain aspects” of the rule). For all practical purposes, EPA’s current efforts to cure its year-old notice and comment violations are indistinguishable from those that the Fifth Circuit rejected in *U.S. Steel Corp.*: in both cases, EPA sought public comments on a final rule long after the public had any real chance to change EPA’s mind. As the Fifth Circuit put it “[w]e doubt that . . . the Secretary would seriously consider [our] suggestions after the regulations are a *Fait accompli*.” *U.S. Steel Corp.*, 595 F.2d at 214-15 (quoting *City of New York v. Diamond*, 739 F. Supp. 503, 517 (S.D.N.Y. 1974)).

Because EPA is only now requesting public comment on a rule that remains final, EPA has deprived the public of any meaningful opportunity to influence the Trading Rule, and therefore EPA’s current attempt to affirm the Trading Rule still violates the Clean Air Act’s notice and comment provisions.

## **II. EPA MUST ISSUE A FIP.**

### **A. Under the Clean Air Act, EPA’s Duty to Issue a FIP is Nondiscretionary.**

EPA cannot avoid issuing a FIP in hopes that Texas will one day issue a “better” plan. In its August 2018 proposed rulemaking, EPA seeks comments on “whether a SIP-based program would serve Texas better than a FIP.” 83 Fed. Reg. at 43,587. But this inquiry is foreclosed because it would be unlawful and unreasonable for EPA to further delay issuance of a legally compliant FIP. *See Oklahoma v. EPA*, 723 F.3d 1201, 1223 (10th Cir. 2013) (EPA obligated to

issue FIP despite SIP submission); *Nat. Res. Def. Council v. Browner*, 57 F.3d 1122, 1127 (D.C. Cir. 1995) (EPA obligation to issue FIP “remains in place until the state submits *and gets approved* its own SIP”) (emphasis added).

Section 110 of the Clean Air Act provides that EPA “*shall* promulgate a FIP within 2 years” after a state fails to submit a SIP or EPA disapproves the SIP, unless EPA first approves a corrected SIP before the two-year deadline. 42 U.S.C. § 7410(c)(1) (emphasis added). Courts applying this statutory language have found that EPA’s duty to issue a FIP is nondiscretionary. *See, e.g., Browner*, 57 F.3d at 1124, 1127 (FIP promulgation is mandatory); *Oklahoma*, 723 F.3d at 1223 (same); *Coal. for Clean Air v. S. Cal. Edison*, 971 F.2d 219, 223 (9th Cir. 1992) (the Clean Air Act creates a “mandatory obligation to promulgate a FIP” when a SIP is rejected). Unless EPA has approved a corrected state plan, EPA’s failure to issue a federal plan by the two-year deadline is an abdication of EPA’s duty under the Act. *See Am. Lung Ass’n v. Reilly*, 962 F.2d 258, 263 (2d Cir. 1992) (When statute “sets forth a bright-line rule for agency action . . . there is no room for debate—congress has prescribed a categorical mandate that deprives EPA of all discretion over the timing of its work.”).

Critically, the submission of a SIP does not toll EPA’s two-year deadline to issue a FIP. The Tenth Circuit made this point in *Oklahoma v. EPA*, stating that the “mere *filing* of a SIP” does not eliminate EPA’s duty to promulgate a FIP because such a rule would allow states to “forestall the promulgation of a FIP by submitting one inadequate SIP after another.” 723 F.3d at 1223-24 (“appropriate remedy” when EPA fails to promulgate a FIP within the two-year deadline is an “order *compelling* agency action”). Thus, even if Texas submitted a SIP tomorrow, EPA still would be obligated to submit a compliant FIP today, because the two-year deadline for EPA to issue a FIP has already passed.

## **B. EPA Must Fulfill its Duty to Issue a Compliant FIP for Texas.**

When an agency fails to perform a nondiscretionary duty, the agency bears a “heavy burden” to demonstrate why it should be excused from performance. *Ala. Power Co. v. Costle*, 636 F.2d 323, 359 (D.C. Cir. 1980) (citing *Nat. Res. Def. Council v. Train*, 510 F.2d 692, 712-13 (D.C. Cir. 1974)). That burden is “especially heavy” when an agency has ignored its nondiscretionary duty for several years. *Sierra Club v. Johnson*, 444 F. Supp. 2d 46, 53 (D.D.C. 2006) (internal quotations omitted); *see also Texas*, 829 F.3d at 430 (“EPA may not use its own delay as an excuse” for failing to comply with the Clean Air Act). EPA cannot satisfy such a heavy burden here as there is simply no reasonable justification for the agency’s lengthy failure in ensuring that the haze reductions required by the Clean Air Act actually occur.

EPA has failed for at least seven years to satisfy its nondiscretionary duty to issue a lawful FIP for Texas. EPA first determined in 2009 that Texas failed to submit an adequate SIP when the state missed the statutorily-created SIP submission deadline. 74 Fed. Reg. at 2,393 (noting deadline as 2007). This determination started the clock on EPA’s obligation to issue a FIP within two years. *Texas*, 829 F.3d at 414 (EPA’s 2009 finding that Texas missed SIP-submission deadline “triggered a two-year deadline for EPA to promulgate a [FIP]”); *Oklahoma*, 723 F.3d at 1205 (same). That deadline expired in 2011 and EPA still has failed to promulgate a

lawful FIP in direct contravention of its statutory duty. The fact that Texas might someday submit a SIP has no bearing on EPA's statutory duty to issue a compliant FIP today. *Id.* at 1223 (“[T]he mere *filing* of a SIP by Oklahoma does not relieve the EPA of its duty [to issue a FIP].”) Because EPA did not approve a Texas SIP before 2011, EPA is required to issue a FIP, full stop. *See Browner*, 57 F.3d at 1124 (“FIP promulgation can be avoided only if EPA has actually approved the state's SIP submission.”).

Put simply, EPA's request for comments on whether a SIP would prove preferable to a FIP is irrelevant because EPA cannot lawfully or reasonably further delay issuance of a FIP. Both Congress and the courts have made clear that EPA's duty to promulgate a FIP within two years of a state's failure to submit a sufficient SIP is non-discretionary. That deadline has long since passed and EPA still has not promulgated a compliant FIP, proposing instead to “affirm” its procedurally and substantively defective Trading Rule. After nearly a decade of withholding action and waiting for Texas to put forth a sufficient plan, EPA cannot continue to kick the can: it must withdraw its defective Trading Rule and issue a compliant FIP for Texas immediately.

### **III. EPA MUST FINALIZE A SOURCE-SPECIFIC BART RULE.**

The only lawful option that EPA has proposed for satisfying the BART requirements is the January 2017 source-specific BART proposal, which EPA must finalize. To begin, EPA has failed to provide a rational basis for abandoning the source-specific BART proposal it issued in January 2017. EPA has not identified any errors in that proposal, nor has EPA explained why it believes the Trading Rule is preferable to the source-specific BART proposal.

In addition, source-specific BART is the only option that EPA has proposed that would satisfy the requirement that each haze plan contain emissions limits that make reasonable progress. Source-specific BART would dramatically reduce the SO<sub>2</sub> emissions that contribute to haze.<sup>49</sup> By contrast, the Trading Rule would make no progress toward eliminating visibility impairment, because the Rule authorizes sources to increase emissions relative to actual emissions in 2015, 2016, and 2017.

Moreover, the Regional Haze Rule requires all emission reductions from a BART alternative to take place before the end of the first planning period. Given that the first planning period ends in 2018, and the Trading Rule does not begin until 2019, the Trading Rule, and any other BART alternative, would be unlawful.

Finally, the Trading Rule's allocation of emissions to units that have already retired and lack a valid Title V permit is arbitrary and capricious, because such allowances could only be used to cover increased emissions from other units, and the Trading Rule already allocates too many emissions to require or incentive emission reductions.

---

<sup>49</sup> Even the presumptive SO<sub>2</sub> BART limit for EGUs of 95% control or an emission rate of 0.15 lb/MMBtu, 40 C.F.R. pt. 51, App. Y § (IV)(E)(4), which is far less stringent than the source-specific limits EPA proposed in January 2017, would reduce emissions and improve visibility far more than the Trading Rule because many of the relevant units currently emit at levels above presumptive BART.

For these reasons, and as explained more fully below, EPA must finalize a source-specific BART plan.

**A. EPA Provides No Rational Basis for Abandoning the Source-Specific BART Proposal in Favor of the Trading Rule.**

EPA has failed to offer any reasonable basis for scrapping the January 2017 proposal's strong, source-specific SO<sub>2</sub> emission limits in favor of an intrastate emissions trading scheme that would allow emissions to increase. On January 4, 2017, EPA proposed source-by-source BART determinations based on analyses of the five statutory BART factors. The 2017 BART proposal was supported by, *inter alia*, detailed, source-specific analyses of the cost of SO<sub>2</sub> controls, the level of control achievable by different technologies, estimated emissions reductions, and projected visibility improvement from operation of such controls. *See generally* BART FIP TSD; *see also* 82 Fed. Reg. at 921-45. The voluminous administrative record, which we hereby incorporate by reference, thoroughly demonstrates that the 2017 BART proposal would achieve the haze reductions required by law. It would do so through the installation of SO<sub>2</sub> controls—new or upgraded scrubbers—that are in wide use in the power plant industry, as EPA has acknowledged.<sup>50</sup> In addition to being technically feasible, the source-specific controls that EPA proposed would be cost-effective.<sup>51</sup> The figure below compares the cost-effectiveness of EPA's proposed January 4, 2017 source-by-source BART determinations for Texas to the cost-effectiveness of the top 50 least cost-effective (highest \$/ton) previous BART determinations. Each bar represents one BART determination required by either a SIP or a FIP.<sup>52</sup> This comparison indicates that the cost-effectiveness of the source-by-source BART determinations EPA proposed for Texas were well within the range of previously approved BART determinations by EPA and the states.

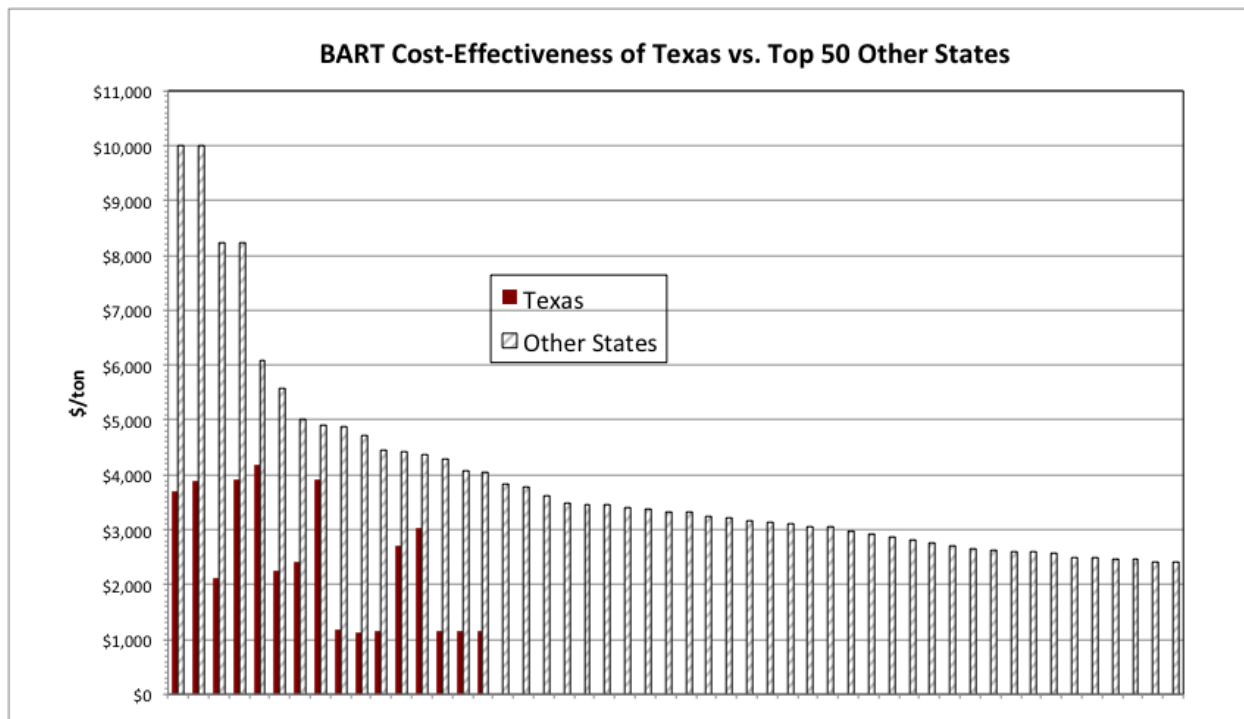
---

<sup>50</sup> *See* 82 Fed. Reg. at 924 (regarding scrubber technology) (As described above, these controls are in wide use and have been retrofitted to a variety of boiler types and plant configurations. We therefore see no technical infeasibility issues and believe that limestone wet FGD and lime SDA should be considered as potential BART controls for all of the unscrubbed coal-fired BART-eligible units). Similarly, EPA acknowledges that, "The BART Guidelines state that underperforming scrubber systems should be evaluated for upgrades." 82 Fed. Reg. at 945 (footnote omitted). The Energy Information Agency reported that in 2015, 748 scrubber installations were in operation in the U.S. 82 Fed. Reg. at 923.

<sup>51</sup> *See* 82 Fed. Reg. at 915 ("Addressing the BART requirement for Texas EGUs, as proposed today, with cost-effective and readily available controls, will help ensure that progress is made toward natural visibility conditions at Class I areas affected by Texas' sources.").

<sup>52</sup> *See* "Cost-effectiveness of Historical BART Determinations.xlsx" excel spreadsheet, attached as Ex. 7.

## Cost-Effectiveness of Proposed, Source-Specific BART Controls for Texas Sources Compared to Other BART Determinations



In both the October 2017 final rule and in this proposal, EPA has not questioned the validity of any of these source-specific BART analyses. EPA has not identified any errors in the BART proposal, and has not responded to most comments submitted on the January 2017 proposal.<sup>53</sup> Nor has EPA attempted to demonstrate that the intrastate trading program would achieve greater reasonable progress than the January 2017 source-specific BART proposal. To the contrary, EPA assiduously avoids making comparisons between the source-specific BART proposal and the intrastate trading scheme.<sup>54</sup>

Instead, EPA’s only proffered rationale for abandoning the January 2017 source-specific BART proposal in favor of a new, intrastate trading program is that such abandonment was suggested by some commenters, including the State of Texas, and EPA gave “particular weight”

<sup>53</sup> See, e.g., 82 Fed. Reg. at 48,352 (“We are not finalizing our evaluation of whether individual sources are subject to BART. As a consequence, we believe that it is not necessary to respond to the merits of comments concerning source-specific visibility benefits of controls on these units, because we are not finalizing requirements based on those controls.”).

<sup>54</sup> EPA tries to downplay the significance of its BART proposal, stating its disagreement with the notion “that merely proposed determinations of BART in the context of a possible FIP set a stringency threshold for a demonstration set forth in a hypothetical SIP,” and arguing that “[p]roposed determinations are only proposals.” 82 Fed. Reg. at 48,336. In doing so, however, the agency ignores the fact that the BART proposal’s technical analyses were not questioned at all in the Trading Rule. EPA cannot simply sweep away the exhaustive findings it made in the proposed BART rule. See, e.g., *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 650 (D.C. Cir. 2016) (holding that “[b]ecause its justifications for the final rule contradict earlier findings, the EPA must provide some reasoning to explain why its final decision runs counter to the evidence before the agency”) (citations omitted).

to the State's views.<sup>55</sup> EPA has not explained why it is appropriate to give greater weight to some comments than to others—i.e., why the agency followed the State's and Luminant's suggestion while ignoring other commenters' recommendation to finalize the January 2017 BART proposal. *See, e.g.,* NPCA/SC Comments<sup>56</sup> at 26-40 (explaining why EPA should finalize its source-specific determinations for SO<sub>2</sub> BART). EPA received comments from all sides of this issue, so it has a duty to explain why it acted on some comments and rejected others.

EPA's suggestion that the State's request for a trading program justifies abandonment of the proposed rule's source-specific BART determinations, 82 Fed. Reg. at 48,327, is particularly misplaced. While the Clean Air Act does establish a cooperative state-federal framework, this does not justify EPA blindly deferring to a State's expressed preferences for no reason. Moreover, EPA's deference to Texas' preferences is particularly inappropriate here, given the State's refusal to submit a new plan that corrects the 2009 plan that EPA properly disapproved.

Here, Texas is free to submit a proposed SIP for EPA's review, and such a SIP could ultimately be adopted if it met Clean Air Act requirements.<sup>57</sup> Indeed, in its January 2017 BART proposal, EPA made clear that it would "work with the State . . . if it chooses to develop a SIP to meet these overdue Regional Haze requirements and replace or avoid a finalized FIP." 82 Fed. Reg. at 915. But to date, Texas has not done so, and the possibility of a future SIP does not affect EPA's *present* obligation to take final action on the BART proposal. It certainly does not justify replacing the source-specific BART proposal with a trading program that Texas apparently wants but is unwilling to propose, especially when, as explained below, the Trading Rule does not come close to satisfying the haze reduction required by the Clean Air Act and EPA's haze regulations.

## **B. Source-Specific BART is the Only Option EPA Has Proposed that is Consistent with Statutory Requirements and Goals.**

In upholding EPA's authority to select an alternative to source-specific BART, the D.C. Circuit has held that the overriding requirement for each regional haze plan is that it make reasonable progress toward eliminating haze pollution. *See Util. Air Regulatory Group v. EPA*, 471 F.3d 1333, 1335 (D.C. Cir. 2006). As explained elsewhere in these comments, the Trading Rule would not result in any progress, much less reasonable progress, because the Trading Rule does not require any emissions reductions relative to actual emissions from covered sources in 2015, 2016, and 2017. Instead, the Rule would authorize an increase in

---

<sup>55</sup> *See, e.g.,* 82 Fed. Reg. at 48,333 ("Due to the comments we received requesting a BART alternative in lieu of source-specific BART determinations, we are finalizing an intrastate SO<sub>2</sub> trading program as an alternative to source-by-source BART and to meet the interstate visibility transport requirements."); *id.* at 48,327.

<sup>56</sup> Docket ID No. EPA-R06-OAR-2016-0611-0083, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0083>.

<sup>57</sup> *See, e.g.,* 81 Fed. Reg. at 308 ("[O]ur review of SIPs is not limited to a ministerial review and approval of a state's decisions . . . . [T]he CAA directs us to act if a state fails to submit a SIP, submits an incomplete SIP, or submits a SIP that does not meet the statutory requirements. Thus, the CAA provides us with a critical oversight role in ensuring that SIPs meet the CAA's requirements."); *Oklahoma*, 723 F.3d at 1223 ("Once the EPA issued findings that Oklahoma failed to submit the required SIP under the Regional Haze Rule, the EPA had an obligation to promulgate a FIP. The statute itself makes clear that the mere *filing* of a SIP by Oklahoma does not relieve the EPA of its duty.").

emissions. As a result, the Trading Rule, and the accompanying FIP as a whole, fail to satisfy the fundamental requirement that each regional haze plan “contain such emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting the national goal” of eliminating haze pollution. 42 U.S.C. § 7491(b)(2).

EPA may claim that the Trading Rule makes reasonable progress relative to baseline dates prior to 2015, 2016, and 2017.<sup>58</sup> However, regardless of which baseline date is used, the January 2017 source-specific BART proposal, or even presumptive BART, would reduce emissions and improve visibility far more than the Trading Rule. In addition, EPA cannot credibly claim that the Trading Rule will make any reasonable progress without comparing emissions under the Trading Rule to recent emission levels, e.g., emissions in 2015, 2016, and 2017.

The failure of the Trading Rule to satisfy 42 U.S.C. § 7491(b)(2)(A) is especially problematic given EPA’s mistaken position that BART is a one-time obligation that need not be revisited in future regional haze plans. To be clear, we do not agree that Congress intended BART to be determined only once for each source. However, EPA’s interpretation of BART as a one-time requirement makes it all the more important that, in establishing the long-overdue BART standards for Texas at issue here, EPA select an option that will reduce emissions and make reasonable progress toward eliminating haze pollution. Here, the only option EPA has presented that would do so is the January 2017 source-specific BART proposal, which EPA must finalize.

### **C. Any BART Alternative is Unlawful Because No Emissions Reductions Could Occur Before the End of the First Planning Period.**

Under the Regional Haze Rule, any BART alternative must include a “requirement that all necessary emission reductions take place during the period of the first long-term strategy for regional haze.” *See* 40 C.F.R. § 51.308(e)(2)(iii). The first long-term strategy runs concurrently with the first planning period, which ends in 2018.<sup>59</sup> Thus, any BART alternative would need to achieve “all necessary emission reductions” this year.<sup>60</sup>

---

<sup>58</sup> While Texas SO<sub>2</sub> emissions were lower in 2015-2017 as compared to earlier years, most of that decline was due to retirements and the uncompetitiveness of coal-fired electricity generation compared to natural gas and renewables. In addition, 2017 emissions were higher than 2015 and 2016, and by authorizing even higher emissions than seen in 2015-2017, the Trading Rule would likely further erode whatever gains were made post-2014.

<sup>59</sup> *See, e.g., Yazzie v. EPA*, 851 F.3d 960, 970 n.8 (9th Cir. 2017) (noting dispute among parties as to the exact date on which first planning period ends, the latter of which is Dec. 31, 2018); 77 Fed. Reg. at 33,647 (noting that 2018 is “the end of the first regional haze planning period”); 64 Fed. Reg. at 35,760 (referencing 2018 as “the end of the first long-term progress period”).

<sup>60</sup> *See, e.g.,* 77 Fed. Reg. 36,044, 36,053 (June 15, 2012) (“Section 308(e)(2) requires that all emission reductions for the alternative program take place by 2018 . . . .”); 77 Fed. Reg. 28,825, 28,832 (May 16, 2012) (“Under 40 CFR 51.308(e)(2)(iii)–(iv), all emission reductions for the alternative program must take place by 2018 . . . .”); 77 Fed. Reg. 18,052, 18,075 (Mar. 26, 2012). The same is not true of source-specific BART itself. Neither the statute nor the Regional Haze Rule contains any requirement that emissions reductions from source-specific BART occur by the end of the first long-term strategy or first planning period. *See* 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. § 51.308(e).



As noted elsewhere in these comments, the Trading Rule does not require any emissions reductions at all relative to 2015, 2016, and 2017 emissions. Even assuming for the sake of argument that the Trading Rule were valid and would require emission reductions (which it will not), the Rule will likely not be finalized and therefore not be in place by the end of 2018. Moreover, even the version of the Trading Rule that EPA issued in 2017 fails this requirement, because the intrastate trading program does not begin until January 1, 2019. 82 Fed Reg. at 48,330, 48,368.

EPA claimed in the 2017 Trading Rule that “the end of the first planning period of the first long-term strategy for Texas is 2021,” 82 Fed. Reg. at 48,330; *see also* Legal RTC at 7. But that claim was unsupported, and is inconsistent with EPA’s prior statements identifying 2018 as the close of the first planning period. *See, e.g.*, 77 Fed. Reg. at 36,053; 77 Fed. Reg. at 28,832; 77 Fed. Reg. at 18,075. And while EPA now claims that revisions to the Regional Haze Rule that the agency made in January 2017 extended the first planning period, that claim is belied by the fact that in the 2017 revisions, EPA specifically noted that it was not altering the first planning period, stating that:

All of these changes apply to periodic comprehensive state implementation plans developed for the second and subsequent implementation periods and to progress reports submitted subsequent to those plans. These changes do not affect the development and review of state plans for the first implementation period or the first progress reports due under the 1999 Regional Haze Rule.

82 Fed. Reg. 3078, 3080 (Jan. 10, 2017). EPA’s belated claim to the contrary is simply baseless.

In sum, because any BART alternative would need to achieve all necessary emission reductions by 2018, and because the Trading Rule will not be implemented by 2018, the Trading Rule does not constitute a lawful BART alternative. 42 U.S.C. § 7607(d)(9)(A). The only lawful path forward is for EPA to finalize a source-specific BART rule.

#### **D. EPA’s BART Alternative is Unlawful Because it Allocates Emission Credits to Sources that Have Already Retired.**

Finally, EPA’s BART alternative is arbitrary and capricious because it allocates emission credits to sources that have already retired. EPA cannot approve or issue an implementation plan that would interfere with “any . . . applicable requirement” of the Clean Air Act. 42 U.S.C. § 7410(l); *see also id.* § 7410(a)(2)(A) (each plan “shall” include enforceable emission limits or measures as necessary to meet the applicable requirements of the Act). Title V of the Act flatly prohibits the operation of, or emission of air pollutants from, any source or the emission of air pollutants except in compliance with a valid permit issued by the state permitting authority. *See, e.g., id.* § 7661a(a) *et seq.*

Under the proposed “affirmation” of the Trading Rule, EPA would continue to allocate more than 54,000 annual SO<sub>2</sub> emission credits to seven EGU units—Big Brown Units 1 and 2, Monticello Units 1, 2, and 3, Sandow Unit 4, and Welsh Unit 2—which have already retired and relinquished their operating permits. *See* the following files “V.B.\_Sandow054 Void Letter,” “V.B.\_Air OP\_65-27695,” and “V.B.\_O64 Monticello Void” attached as Ex. 8, 9, and 10,

respectively; 83 Fed. Reg. at 43,599-600 (Table 6--Allocations for Texas EGUs Subject to the FIP SO<sub>2</sub> Trading Program). Because those EGUs have already relinquished their operating permits, and are therefore prohibited from emitting *any* SO<sub>2</sub> pollution, already-retired units could not use allowances to cover their own emissions. Instead, the only lawful option would be for already-retired units to transfer allowances to existing units, which could then increase their emissions above the levels authorized by the allowances they otherwise had received. This is arbitrary and capricious because, as explained throughout these comments, the Trading Rule already grants far too many allowances, even without granting allowances to already-retired units. Specifically, even if one does not count allowances to already-retired units, the Trading Rule allocates more allowances to existing units than those units emitted in 2015, 2016, and 2017. Granting allowances to already-retired units exacerbates this critical flaw, by further allowing units to increase emissions relative to recent emission levels, and by failing to make any progress at all toward eliminating haze pollution.

Nor can EPA claim credit for the emission reductions resulting from the deactivation of those units. Under the Regional Haze Rule, EPA must demonstrate that “the emission reductions resulting from the emissions trading program or other alternative measure will be *surplus* to those reductions resulting from measures adopted to meet requirements of the CAA as of the baseline date of the SIP.” 40 C.F.R. § 51.308(e)(2)(iv) (emphasis added). Because Big Brown, Monticello, Sandow, and Welsh 2 have already retired and abandoned their operating permits under Title V of the Clean Air Act, they are not entitled to emit any amount of SO<sub>2</sub> under the Clean Air Act. Moreover, the emission reductions associated with the retirement of those units has already occurred, and are binding under Title V of the Clean Air Act. As a result, EPA cannot rationally or lawfully claim that the Trading Rule itself results in any “surplus” emission reductions that are not already required of those plants under Title V of the Clean Air Act.

#### **IV. THE PROPOSED TRADING PROGRAM VIOLATES THE REGULATORY TEST FOR A BART ALTERNATIVE.**

The Trading Rule fails to satisfy the regulatory requirements for a BART alternative in at least three ways. First, EPA has failed to determine BART and compare the Trading Rule to BART. Second, the Trading Rule does not come close to satisfying the core requirement that a BART alternative achieves greater reasonable progress than BART. To the contrary, the Trading Rule would result in no progress at all, because the total emission allowances available under the Rule exceed the covered sources’ actual emissions in 2015, 2016, and 2017. Third, EPA failed to follow its own regulations and policies in attempting to demonstrate that the Trading Rule would make greater reasonable progress than BART.

##### **A. EPA Has Failed to Compare the Trading Rule to BART, as Required by the Regional Haze Rule.**

A BART alternative cannot be approved unless there is a demonstration that the alternative would achieve greater reasonable progress than BART. *Id.* § 51.308(e)(2). This demonstration “must be based on,” among other things, “[a]n analysis of the best system of continuous emission control technology available and associated emission reductions achievable for each source within the State subject to BART and covered by the alternative program.” *Id.* § 51.308(e)(2)(i)(C). The Trading Rule fails to include an analysis of BART at each source that is

subject to BART and covered by the trading scheme, as required by 40 C.F.R. § 51.308(e)(2)(i)(C).

The Regional Haze Rule specifies how BART must be analyzed for the purpose of determining whether an alternative makes greater reasonable progress than BART. BART “must” be analyzed “as provided for in paragraph (e)(1) of this section,” which describes the five factors that must be considered for each source, “unless the emissions trading program or other alternative measure has been designed to meet a requirement other than BART (such as the core requirement to have a long-term strategy to achieve the reasonable progress goals established by States).” *Id.* § 51.308(e)(2)(i)(C). If that exception applies, the state can determine BART “for similar types of sources within a source category based on both source-specific and category-wide information, as appropriate.” *Id.*

EPA claims that because its trading program has been “designed to meet multiple requirements other than BART,” 83 Fed. Reg. at 43,598—namely, the interstate transport requirements and the long-term strategy provisions—the agency does not have to analyze BART. EPA is wrong on both counts: the trading program was not designed to meet requirements other than BART; and even if it were, that would merely allow the agency to analyze BART on a category-wide basis, and would not relieve EPA of the obligation to analyze BART altogether.

**1. The trading scheme is not designed to meet requirements other than BART, and even if it were, EPA must analyze BART on a source-by-source basis.**

EPA’s claim that the Trading Rule was designed to meet requirements other than BART has no merit. First, EPA cannot credibly claim that the trading program was “designed to” meet the Clean Air Act’s visibility transport requirements, because EPA has not made any determination of the trading program’s visibility impacts on other states. To support the notion that the Trading Rule was designed to meet interstate visibility transport requirements, *see* 83 Fed. Reg. at 43,604, EPA cites a 2013 guidance document<sup>61</sup> stating that states can meet such requirements by pointing “to measures that limit visibility-impairing pollutants and ensure that the resulting reductions conform with any mutually agreed emission reductions under the relevant regional haze regional planning organization (RPO) process.” *Id.*

Here, the regional planning process for Texas and surrounding states was conducted more than a decade ago, and assumed that states would implement CAIR. EPA argues that because the Trading Rule would reduce more emissions than CAIR, the Rule achieves the emission reductions that other states and Texas agreed Texas would achieve, and therefore the Rule is designed to satisfy the interstate visibility transport requirements. 82 Fed. Reg. at 48,332. This argument has no merit. EPA cannot use CAIR as the benchmark for whether the interstate visibility transport requirements are met, given that CAIR was invalidated years ago by the D.C. Circuit, *North Carolina*, 531 F.3d at 903, and has been replaced by CSAPR. 76 Fed. Reg. 48,208. Moreover, EPA disapproved Texas’ regional haze plan precisely because it relied on

---

<sup>61</sup> EPA, Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and (2) (Sept. 2013), Docket ID No. EPA-R06-OAR-2016-0611-0104, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2016-0611-0104>.

CAIR. 77 Fed. Reg. 33,642. It is arbitrary and capricious for EPA to now turn around and claim that interstate visibility transport requirements are satisfied because the emissions reductions in CAIR will be achieved. Further, as discussed below, EPA provides no support for its claim that the emission levels assumed in the CENRAP modeling are sufficient to assure that Texas' emissions do not interfere with other states' visibility plans.

EPA cannot lawfully claim that the Trading Rule was designed to meet the visibility transport requirements of the Clean Air Act for several additional reasons. First, the Clean Air Act's visibility good neighbor provision requires—and authorizes—EPA to prohibit *only* those upwind emissions that “interfere with measures required to be included in the applicable implementation plan for any other State.” 42 U.S.C. § 7410(a)(2)(D)(II); *cf. E.P.A. v. EME Homer City Generation, L.P.*, 134 S.Ct. 1584, 1604 (2014) (the Clean Air Act authorizes EPA to “prohibit[ ] only upwind emissions that contribute significantly to downwind *nonattainment*.”) (emphasis in original); *see also Homer City II*, 795 F.3d at 127. Indeed, applying the Supreme Court's precedent interpreting the analogous good neighbor provision under Section 7410(a)(2)(D)(I), EPA does not have authority—and is not *required*—to regulate upwind emissions unless it first makes the predicate finding that those upwind emissions “interfere” with downwind visibility. And even if EPA makes that finding, the agency may only regulate upwind emissions up to the “amounts” of pollution that actually “interfere” with downwind visibility. *E.P.A. v. EME Homer City Generation, L.P.*, 134 S.Ct. 1584, 1603 (U.S. 2014); *see also Homer City II*, 795 F.3d at 127 (“EPA may not require ‘an upwind State to reduce emissions by more than the amount necessary to achieve attainment in *every* downwind State to which it is linked . . . . If EPA does so, ‘the Agency will have overstepped its authority, under the Good Neighbor Provision, to eliminate those amounts that contribute to nonattainment.’”). Here in “affirming” its Trading Rule, EPA has failed to make any predicate finding that emissions from Texas are interfering with downwind states' attainment of the NAAQS. As a result, the agency has not demonstrated that there is any good neighbor “*requirement*” that the BART Trading Rule is designed to meet. 40 C.F.R. § 51.308(e)(2)(i)(A). Even if EPA had made such a finding, the agency may only prohibit those emissions up to the amounts that interfere with downwind visibility, and EPA has made no such technical showing. Consequently, EPA cannot properly claim that the Trading Rule was designed to meet the agency's good neighbor “*requirement*” to protect downwind visibility from “interfere[nce].”

Nor can EPA bypass the source-specific analyses required by section 51.308(e)(2)(i)(C) by simply asserting that its trading scheme was “designed to be part of the long-term strategy [ ] to meet [ ] reasonable progress requirements.” 83 Fed Reg. at 43,598. The “long-term strategy must include enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the reasonable progress goals established by States having mandatory Class I Federal areas.” 40 C.F.R. § 51.308(d)(3). Given that the long-term strategy consists of *all* the measures in a regional haze plan, EPA's assertion that BART requirements are designed to meet the long-term strategy requirements would mean that the exception would swallow the rule in 40 C.F.R. § 51.308(e)(2)(i)(C). EPA's claim that the Trading Rule is somehow designed to meet the reasonable progress requirements is also contradicted by EPA's statement elsewhere in the Rule that it is not taking action on the reasonable progress elements that the Fifth Circuit remanded to the agency. 83 Fed. Reg. at 43,597 n.78 (“However, the EPA is not determining at this time that this final action fully resolves the EPA's outstanding obligations with respect to

reasonable progress that resulted from the Fifth Circuit’s remand of our reasonable progress FIP. We intend to take future action to address the Fifth Circuit’s remand.”). Setting aside this internal inconsistency, the Trading Rule cannot be designed to satisfy the reasonable progress requirements for the additional reason that the Trading Rule makes no progress at all; as noted throughout these comments, the allowances available under the Trading Rule exceed the covered sources’ emissions in 2015, 2016, and 2017, and thus the Trading Rule will not reduce emissions or improve visibility. Moreover, the Trading Rule cannot possibly be designed to satisfy the reasonable progress requirements because, as explained below, EPA has failed to consider the four statutory factors for reasonable progress, and the regulations do not authorize a reasonable progress alternative program comparable to BART alternatives.

**2. Even if the Trading Rule were designed to meet requirements other than BART, EPA has unlawfully failed to analyze BART for sources subject to BART and covered by the trading program.**

Even if the Trading Rule were designed to meet requirements other than BART—which it is not—EPA would still have violated 40 C.F.R. § 51.308(e)(2)(i)(C) by failing to analyze BART for the sources subject to BART and covered by the trading program. If a state seeks to adopt an alternative to BART, “[f]or all such emission trading programs or other alternative measures,” the state “must” submit “[a]n analysis of the best system of continuous emission control technology available and associated emission reductions achievable for each source within the State subject to BART and covered by the alternative program.” 40 C.F.R. § 51.308(e)(2)(i)(C). There is no exception to this requirement.

Instead, the Regional Haze Rule provides an exception to the default rule for *how* BART must be analyzed. The default rule is that BART must be analyzed “as provided for in paragraph (e)(1),” *id.*, meaning that each of the five statutory BART factors must be analyzed for each BART source. But if “the emissions trading program or other alternative measure has been designed to meet a requirement other than BART . . . the State may determine the best system of continuous emission control technology and associated emission reductions for similar types of sources within a source category based on both source-specific and category-wide information, as appropriate.” *Id.*

Elsewhere in our comments we discuss several reasons why the Trading Rule is not BART and is not designed to meet requirements other than BART. Here, assuming *arguendo* that the trading program is designed to meet a requirement other than BART, 40 C.F.R. § 51.308(e)(2)(i)(C) merely authorizes EPA to analyze BART based on “category-wide information” in addition to source-specific information. It does not relieve EPA of the obligation to analyze BART at all. EPA made this clear in the preamble to the rule adding this provision to the Regional Haze Rule, in which EPA explained that its goal was to allow states to use simplifying assumptions to calculate BART for comparison purposes, not to eliminate altogether the obligation to analyze BART:

States should have the ability to develop a BART benchmark based on simplifying assumptions as to what the most-stringent BART is likely to achieve. The regulations finalized today therefore provide that where an emissions trading program has been designed to meet a requirement other than BART, including the

reasonable progress requirement, the State may establish a BART benchmark based on an analysis that includes simplifying assumptions about BART control levels for sources within a source category.

71 Fed. Reg. 60,612, 60,618 (Oct. 13, 2006). EPA claims to be “relying on the determinations of the best system of continuous emission control technology and associated emission reductions for EGUs as was used in our 2012 determination... These determinations were based largely on category-wide information.” 83 Fed. Reg. at 43,598. This vague reference does not fulfill EPA’s obligation to develop and document a clear, relevant BART benchmark to which the public can directly compare its alternative. The proposal contains no determination identifiable as “the best system of continuous emission control technology” or any value documenting “associated emission reductions.” 40 C.F.R. § 51.308(e)(2)(i)(C). EPA’s failure to analyze BART for the sources covered by the trading program therefore violates 40 C.F.R. § 51.308(e)(2)(i)(C).

Further, as discussed below, EPA has failed to even determine which units are subject to BART, and EPA plainly cannot claim to have determined BART when it has not determined which units are subject to BART in the first place. Additionally, even if EPA’s cursory reference to the 2012 determination were sufficient to determine BART, which it is not, that determination assumed presumptive BART levels, which were developed long ago are now outdated. At 0.15 lbs/MMBtu, 40 C.F.R. pt. 51, App. Y § (IV)(E)(4), presumptive BART limits are roughly three times higher than most recent SO<sub>2</sub> BART determinations that rely on new scrubbers, which, like the BART determinations in the January 2017 proposal for Texas, tend to be closer to 0.05 lbs/MMBtu. Presumptive BART is thus nowhere near “what the most-stringent BART is likely to achieve,” 71 Fed. Reg. at 60,618, and the 2012 determination is not a valid analysis of BART.

This is not a minor technical error. EPA deliberately avoided comparing the trading program to either presumptive BART or source-specific BART because the agency knows that the Trading Rule would not achieve greater visibility improvement than source-specific BART. EPA has elsewhere concluded that source-specific BART or presumptive BART would reduce SO<sub>2</sub> emissions by approximately 194,000<sup>62</sup> tons per year, whereas the Trading Rule would not decrease emissions at all relative to actual emissions in 2015, 2016, and 2017 from the covered sources. EPA flouted its regulations mandating a comparison between the Trading Rule and BART because the agency’s own, prior analyses demonstrate that the Trading Rule cannot possibly satisfy the regulatory standard of achieving greater reasonable progress than BART.

### **3. EPA violated the Regional Haze Rule by failing to determine which units are subject to BART.**

As subsections A.1 and A.2 above demonstrate, EPA has failed to determine BART on a source-specific or category-wide basis for the purpose of comparing the Trading Rule to BART. Part of this failure stems from EPA’s refusal to determine which sources are subject to BART in the first place. In its October 17, 2017 final action, EPA stated that “we do not deem it necessary to finalize subject-to-BART findings for these EGUs for these pollutants.” 82 Fed. Reg. at 48,328. In particular, EPA declined to determine whether Coletto Creek is subject to BART and

---

<sup>62</sup> BART FIP TSD at 2.

declined to respond to comments concerning its subject-to-BART modeling. *Id.* at 48,351-52. Elsewhere, EPA stated in responding to a comment, “We note that, as discussed elsewhere, we are not making a subject-to-BART determination for those sources covered by the SO<sub>2</sub> trading program. In our final rule, the relevant BART requirement for these participating units will be encompassed by BART alternatives for NO<sub>x</sub> and SO<sub>2</sub> such that we do not deem it necessary to finalize subject-to-BART findings for these EGUs.” *Id.* at 48,349.

In the current proposal, EPA has not remedied this flaw by determining which units, particularly coal units, are subject to BART. Instead, EPA has considered only whether sources are subject to BART for PM, and whether certain oil- and/or gas-fired units are subject to BART. But most of the sources covered by the Trading Rule are coal-fired power plants, and EPA has still not determined which coal-fired EGUs are subject to BART.

EPA erroneously argues that any source that would be subject-to-BART is a part of its Texas SO<sub>2</sub> BART alternative, implying that the issue is moot. However, section 51.308(e)(1)(ii) requires that EPA make “[a] determination of BART for each BART-eligible source in the State that emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area. All such sources are subject to BART.” EPA cannot make “[a] determination of BART” unless it first identifies which sources are subject-to-BART. This requirement pertains to any BART determination, including BART alternative programs under sections 51.308(e)(2) – (4). Other provisions of the Regional Haze Rule, such as 40 C.F.R. § 51.308(e)(2)(i)(E), also require the identification of which sources are subject-to-BART.

In sum, EPA has unlawfully failed to determine which units are subject to BART. EPA’s determination of whether some oil- and/or gas-fired units are subject to BART, and whether units are subject to BART for PM, is grossly insufficient, given that the largest source of haze-forming pollutants are coal-fired power plants, for which EPA has failed to make subject-to-BART determinations. Without finalizing EPA’s January 2017 proposal regarding which units are subject to BART or otherwise deciding which sources are first subject to BART, EPA has not taken the first required step to make the source-specific or category-wide BART determinations that are necessary for the requisite comparison of the Trading Rule to BART under 40 C.F.R. § 51.308(e)(2)(C).

#### **4. EPA cannot use CSAPR as a BART benchmark in attempting to show that the Trading Rule makes greater reasonable progress than BART.**

Regardless of whether EPA makes its better-than-BART demonstration under the two-prong test in 40 C.F.R. § 51.308(e)(3) or uses the “clear weight of evidence” option under 40 C.F.R. § 51.308(e)(2)(i)(E), EPA must compare a BART alternative to a BART benchmark in demonstrating greater reasonable progress. 40 C.F.R. § 51.308(e)(2)(i)(E). Here, EPA attempts to use CSAPR, rather than BART, as a BART benchmark, claiming that “the BART alternative is projected to accomplish emission levels from Texas EGUs that are similar to the emission levels from Texas EGUs that would have been realized from participation in the SO<sub>2</sub> trading program under CSAPR” and identifying a 2012 CSAPR demonstration as “the primary evidence that the Texas trading program achieves greater reasonable progress than BART.” 83 Fed. Reg. at 43,599. This use of CSAPR, not BART, as a BART benchmark is impermissible.

Because EPA withdrew Texas from the CSAPR program for SO<sub>2</sub>, CSAPR is not by definition BART for SO<sub>2</sub>. In previous instances in which EPA compared BART alternatives to BART, those BART benchmarks, although ultimately not implemented in favor of the BART alternative, could have been implemented as lawful BART determinations. Were that not the case, they would not have qualified as legitimate BART benchmarks, because a BART determination must be codified as a federally enforceable emission limit. *See* 40 C.F.R. pt. 51, App. Y § (V) (“To complete the BART process, you must establish enforceable emission limits that reflect the BART requirements and require compliance within a given period of time. In particular, you must establish an enforceable emission limit for each subject emission unit at the source and for each pollutant subject to review that is emitted from the source.”). If a purported BART determination could not be implemented via a federally enforceable emission limit, then it could not be a proper BART determination under the BART Guidelines, *see id.*, and therefore cannot serve as a BART benchmark for purposes of assessing a BART alternative.

Here, EPA has no legal authority to require Texas to participate in SO<sub>2</sub> CSAPR. Given that EPA lacks legal authority to compel Texas sources to participate in SO<sub>2</sub> CSAPR, it is arbitrary and capricious for EPA to use CSAPR as a BART benchmark under section 51.308(e)(2)(i)(E) for Texas.

Even if EPA possessed the legal authority to compel Texas sources to participate in CSAPR for SO<sub>2</sub>, CSAPR still could not serve as a BART benchmark to which the Trading Rule could be compared. That is because the Regional Haze Rule requires a comparison between the reasonable progress that would be made by a BART alternative versus BART, 40 C.F.R. § 51.308(e)(2), (e)(2)(i)(C), (e)(3), and a demonstration that the alternative would make greater reasonable progress than BART, *id.* § 51.308(e)(2). CSAPR is a BART alternative, not a determination of BART pursuant to the five statutory factors in 42 U.S.C. § 7491(g)(2). No provision of the Regional Haze Rule authorizes EPA to approve a BART alternative by comparing it to another BART alternative and claiming that the BART alternative makes equal or greater reasonable progress than another alternative program—which is what EPA has unlawfully done here.

**B. EPA Failed to Follow its Own Regulations for Determining Whether the Clear Weight of Evidence Demonstrates that an Alternative Achieves Greater Reasonable Progress than BART.**

EPA attempts to demonstrate that the Trading Rule achieves greater reasonable progress than BART via the optional “clear weight of evidence” approach of section 51.308(e)(2)(i)(E) in lieu of the requirements of sections 51.308(e)(3)(i)-(ii). In other rulemakings, EPA has explained how the clear weight of evidence provision in section 51.308(e)(2)(i)(E) should be applied.<sup>63</sup> For instance, in disapproving Utah’s BART alternative, EPA stated that pursuant to the BART Alternative Rule,<sup>64</sup> the clear weight-of-evidence test requires three steps:<sup>65</sup>

---

<sup>63</sup> 71 Fed. Reg. at 60,622; *see also* 81 Fed. Reg. 43,894, 43,896 (July 5, 2016).

<sup>64</sup> 71 Fed. Reg. at 60,622.

<sup>65</sup> 81 Fed. Reg. at 43,896.



- (a) Use information and data that can inform the decision. . . .
- (b) Recognize the relative strengths and weaknesses of the information. Evaluate the information and recognize the relative strengths and weaknesses of the metrics used. This process involves assigning weights to each piece of information that indicate the degree to which it supports a finding that the alternative program will achieve greater visibility benefits. Such a weighing system might find that: (i) The information clearly shows the alternative will achieve greater reasonable progress than BART; (ii) the information supports the alternative in some way, but not clearly; or (iii) the information does not support the alternative.
- (c) Carefully consider all the information to reach a conclusion. Collectively consider the weights assigned to the individual pieces of information and consider the total weight of all the information to determine whether the proposed BART alternative will clearly provide for greater reasonable progress than BART at the impacted Class I areas.

In Utah's case, EPA then deliberately and thoughtfully assessed Points (a) – (c). As EPA stated in its final decision:<sup>66</sup>

As part of this evaluation, we assessed the relevance and strength of each metric, that is, we assigned each metric a weight.<sup>67</sup> After determining if, and the extent to which, the information the State relied upon was “of sufficient quality to inform the comparison of visibility impacts between BART and the alternative program,”<sup>68</sup> we assessed the metrics collectively to determine whether the relevant evidence, considered as a whole, clearly demonstrated that the alternative program achieves greater visibility benefits.

In concluding its evaluation of the Utah BART alternative, EPA stated:<sup>69</sup>

As a result of our evaluation, we find that the State's assessment of the metrics was inadequate because it did not recognize the relative strengths and weaknesses of the metrics on an individual basis. We also find that a proper recognition of the relative strengths and weaknesses, including the consideration that some metrics are more meaningful than others, shows that the BART Alternative does not achieve greater reasonable progress than BART.

A key finding of EPA's assessment of Utah's BART alternative was noted as:<sup>70</sup>

---

<sup>66</sup> 81 Fed. Reg. at 43,897.

<sup>67</sup> As discussed in this section, Utah did not assign a weight to each metric.

<sup>68</sup> 71 Fed. Reg. at 60,612, 60,622.

<sup>69</sup> 81 Fed. Reg. at 43,898.

<sup>70</sup> *Id.* at 43,902.

The SIP submittal lacked an explanation of why the information from all the metrics demonstrated that the difference in visibility impacts between BART and the Alternative was large enough to “clearly” demonstrate that the BART Alternative would achieve greater reasonable progress than BART.

With regard to the above, EPA in particular noted that, <sup>71</sup> “[t]he State’s assessment of the overall weight of evidence states only that ‘[t]he weight of evidence shows that the alternative will provide greater reasonable progress than BART.’ Utah Staff Review Report at 27.” In other words, EPA found that Utah skipped the steps required under EPA’s BART Alternative Rule, and merely *proclaimed* that it satisfied the weight of evidence test. This is exactly what EPA is now doing in addressing weight of evidence in its Texas SO<sub>2</sub> BART alternative. For instance, EPA states:

Specifically, the BART alternative is justified “based on the clear weight of the evidence” that the alternative achieves greater reasonable progress than would be achieved through BART. See 40 CFR 51.308(e)(2)(E). The program is designed to accomplish environmental and visibility results by achieving emission levels that will be the same as or better than the emission levels that would have been obtained by state participation in the interstate CSAPR program as finalized and amended in 2011 and 2012, which EPA first deemed to be better than BART for NO<sub>x</sub> and SO<sub>2</sub> in a 2012 regulatory action.<sup>72</sup>

EPA’s attempt to justify the Trading Rule under the “clear weight of evidence” standard suffers from some of the same flaws as Utah’s attempt to justify its BART alternative under that same standard.<sup>73</sup> Namely, EPA does not even mention, much less follow, the BART Alternative Rule’s three-step process for making a clear weight of the evidence demonstration under 40 C.F.R. § 51.308(e)(2). EPA fails to identify, let alone weigh or carefully consider, relevant, easily available information which should have informed its decision, e.g. the entirety of its January 2017 source-specific BART proposal, recent emissions data,<sup>74</sup> presumptive BART emission rates and emission reductions which would be achieved by their use, the weaknesses of the outdated CSAPR evaluations,<sup>75</sup> significant differences between the Trading Rule and CSAPR, and EPA’s own previous evaluation when withdrawing Texas from CSAPR showing greater emission reductions under BART. EPA’s failure to follow its own policies and regulations renders the Trading Rule arbitrary and capricious and otherwise unlawful.

---

<sup>71</sup> *Id.* at 43,902 n.59.

<sup>72</sup> 82 Fed. Reg. at 48,327.

<sup>73</sup> *Id.*

<sup>74</sup> In fact, instead of considering recent emissions, which show that the Trading Rule requires no emission reductions, EPA specifically uses an older year, 2014, for its comparison. 83 Fed. Reg. at 43,598. EPA’s argument that Texas was not subject to CSAPR in 2014 is irrelevant, as it was not subject to CSAPR in 2017 either.

<sup>75</sup> We discuss below that the IPM data are now outdated. See *infra* note 126.

**C. The Trading Rule Violates the Core Requirement that a BART Alternative Achieve Greater Reasonable Progress than BART.**

**1. The clear weight of evidence demonstrates that the trading program will not make greater reasonable progress than BART.**

The clear weight of evidence demonstrates that the Trading Rule would not achieve greater reasonable progress than would be achieved through BART, 40 C.F.R. § 51.308(e)(2). In the October 2017 Trading Rule, EPA claimed that “this BART alternative will result in SO<sub>2</sub> emissions from Texas EGUs that will be similar to emissions anticipated under CSAPR.” 82 Fed. Reg. at 48,327. EPA makes similar claims in proposing to affirm the Trading Rule. *See, e.g.*, 83 Fed. Reg. at 43,598-99. But EPA has already determined that CSAPR would not achieve anywhere near the emissions reductions that source-specific BART would achieve in Texas. Given that the Trading Rule is intended to mimic the effect of CSAPR, and CSAPR would achieve less reasonable progress than BART in Texas, the Trading Rule would also achieve less reasonable progress than BART, in violation of the Regional Haze Rule, 40 C.F.R. § 51.308(e)(2), (e)(2)(i)(E), (e)(3).

In three separate rulemakings, EPA has concluded that CSAPR would achieve far less reasonable progress than source-specific BART would achieve in Texas. First, in the January 2017 BART proposal, EPA determined that source-specific BART would reduce SO<sub>2</sub> emissions by approximately 194,000 tons per year, “a larger reduction than projected under CAIR or CSAPR.” BART FIP TSD at 2.

The BART proposal was the culmination of years of technical work by EPA staff. EPA sent two rounds of information requests to the facilities subject to BART in order to gather source-specific data. *Id.* at 12-21. Using the responses to EPA’s information requests, as well as other data reported to EPA and other agencies, EPA considered each of the five statutory BART factors for each source. *See, e.g., id.* at 25-78. EPA’s detailed analyses span hundreds of pages, in several technical support documents and other documents. And after completing those analyses, EPA ultimately concluded that CSAPR would achieve *less* reasonable progress than the installation and operation of BART in Texas. *Id.* at 2. Given that EPA expects SO<sub>2</sub> emissions under the Trading Rule to be similar to emissions under CSAPR, 82 Fed. Reg. at 48,327, 83 Fed. Reg. at 43,598-99, EPA’s analysis shows that the Trading Rule, like CSAPR, would improve visibility less than would source-by-source BART. For this reason alone, the Trading Rule violates the Regional Haze Rule, 40 C.F.R. § 51.308(e)(2), (e)(2)(i)(E), (e)(3).<sup>76</sup>

Second, in the original Better-than-BART rulemaking, EPA found that CSAPR would result in higher SO<sub>2</sub> emissions than presumptive BART for Texas sources. Specifically, EPA concluded that Texas sources would emit 139,300 tons of SO<sub>2</sub> if presumptive BART limits were

---

<sup>76</sup> It is important to note that EPA has not revised, or even questioned, any aspect of the technical analysis of source-specific BART that EPA conducted for the January 2017 BART proposal. EPA cannot simply ignore its own technical analyses, because the agency failed to identify any errors in those technical analyses.

required, but would emit nearly double that amount, 266,600 tons, under CSAPR.<sup>77</sup> EPA later increased Texas' CSAPR SO<sub>2</sub> budget by 50,517 tons. 81 Fed. Reg. at 78,963 n.58. As a result, Texas' allowed emissions under CSAPR were 316,517 tons, over double the emissions under EPA's 2011 analysis of presumptive BART.<sup>78</sup>

By allowing higher SO<sub>2</sub> emissions, CSAPR would result in less visibility improvement than under BART. When EPA increased Texas' SO<sub>2</sub> budget by 50,517 tons, the agency conducted sensitivity analyses of its visibility modeling for the Better-than-BART Rule to account for significant changes to CSAPR.<sup>79</sup> However, it did not present detailed information on the visibility impacts from Texas emission sources on the Class I areas it identified as impacted by Texas' emissions. Using EPA's own methodology, we have done just that, which we summarize in Table 1 below.<sup>80</sup> This update of EPA's analysis indicates that presumptive BART achieves greater overall visibility improvement<sup>81</sup> than CSAPR when Texas is considered on its own, as it must be here.

Specifically, Table 1 shows that even before EPA increased Texas' SO<sub>2</sub> budget by 50,157 tons, presumptive BART would have achieved greater aggregate visibility improvement than CSAPR on the 20% best days.<sup>82</sup> And after EPA increased Texas' SO<sub>2</sub> budget, the results indicate that presumptive BART would have achieved more visibility improvement in the aggregate than CSAPR on the 20% worst days as well.

In Table 1 below, the "CSAPR + BART Elsewhere" columns represent the change in deciviews ("dv") due to the effects of CSAPR within the transport region and source-by-source BART outside that region (elsewhere). The next columns use EPA's methodology to correct the

---

<sup>77</sup> See EPA, Technical Support Document for Demonstration of the Transport Rule as a BART Alternative at 10, Table 2-4 (Dec. 2011), Docket ID No. EPA-HQ-OAR-2011-0729-0014, *available at* <https://www.regulations.gov/document?D=EPA-HQ-OAR-2011-0729-0014>.

<sup>78</sup> While we point out the data from EPA's CSAPR better than BART rulemaking, EPA has withdrawn Texas from CSAPR for SO<sub>2</sub>, and thus EPA cannot require Texas sources to participate in CSAPR as a means of satisfying the BART requirements. Moreover, as explained elsewhere in these comments, it is unlawful for EPA to assume that because CSAPR would make greater reasonable progress than BART when averaged across all affected states, the Trading Rule will automatically make greater reasonable progress than BART at Class I areas affected by Texas sources.

<sup>79</sup> See EPA, Memo from Brian Timin Re: Sensitivity Analysis Accounting for Increases in Texas and Georgia Transport Rule State Budgets, Docket ID No. EPA-HQ-OAR-2011-0729-0329, *available at* <https://www.regulations.gov/document?D=EPA-HQ-OAR-2011-0729-0329> [hereinafter, "CSAPR BART Sensitivity Memo"].

<sup>80</sup> The visibility information in Table 1 is taken from EPA's CSAPR better-than-BART demonstration, which EPA relies on to justify the Trading Rule. *See, e.g.*, 82 Fed. Reg. at 48,330, 48,342.

<sup>81</sup> We refer here to an overall improvement in visibility, or aggregate visibility improvement, to follow the same methodology that EPA used in the Better-than-BART Rule (as well as updates to that Rule). In purporting to demonstrate that CSAPR achieves greater reasonable progress than BART, EPA relies on 40 C.F.R. § 51.308(e)(3)(ii), which requires that "[t]here is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas."

<sup>82</sup> EPA could have assumed more realistic source-by-source BART emission limits (as EPA demonstrated was feasible in its January 4, 2017 proposal) in lieu of presumptive BART. Had it done so, the results would show much higher SO<sub>2</sub> reductions due to lower SO<sub>2</sub> limitations, making the comparison between BART and CSAPR even more stark.

“CSAPR + BART Elsewhere” columns for the additional 50,157 tons per year SO<sub>2</sub> added to Texas’ budget. This is done by applying the 0.73 proportionality constant EPA calculated in the CSAPR BART Sensitivity Memo to the 20% best and worst days. The next columns represent the BART base case modeling. The last columns indicate whether better visibility resulted from BART or CSAPR before or after the application of the 0.73 proportionality constant.<sup>83</sup> The “Totals” row indicates that the overall visibility improvement from BART on the 20% best days (3 dv) exceeds that from CSAPR (1.7 dv), and similarly the improvement from BART on the 20% worst days (10.3 dv) exceeds that from CSAPR (10.2 dv).

### Updated Version of EPA’s Comparison of Visibility Improvement Under CSAPR vs. BART at Texas Sources<sup>84</sup>

Class I Area Name	State	20 % Best Days Visibility Improvement (dv)				20 % Worst Days Visibility Improvement (dv)			
		CSAPR + BART-elsewhere	CSAPR + BART-elsewhere after EPA Adjustment	BART - 2014 Base Case	Better Visibility under BART before or after EPA Adjustment?	CSAPR + BART-elsewhere	CSAPR + BART-elsewhere after EPA Adjustment	BART - 2014 Base Case	Better Visibility under BART before or after EPA Adjustment?
Big Bend NP	TX	0.2	0.15	0.2	Y – After	1.1	0.80	1.0	Y – After
Caney Creek Wilderness	AR	0.4	0.29	0.6	Y – Before	3.2	2.34	2.2	N
Carlsbad Caverns NP	TX	0.1	0.07	0.1	Y – After	0.9	0.66	0.8	Y – After
Guadalupe Mountains NP	TX	0.1	0.07	0.1	Y – After	0.9	0.66	0.8	Y – After
Hercules-Glades Wilderness	MO	0.6	0.44	0.8	Y – Before	2.5	1.83	1.7	N
Salt Creek	NM	0.1	0.07	0.2	Y – Before	0.7	0.51	0.7	Y – After
Upper Buffalo Wilderness	AR	0.5	0.37	0.6	Y – Before	2.5	1.83	1.4	N
White Mountain Wilderness	NM	0.1	0.07	0.2	Y – Before	0.6	0.44	0.5	Y – After
Wichita Mountains	OK	0.2	0.15	0.2	Y – After	1.6	1.17	1.2	Y – After
<b>Totals</b>		<b>2.3</b>	<b>1.7</b>	<b>3.0</b>		<b>14.0</b>	<b>10.2</b>	<b>10.3</b>	

<sup>83</sup> Prior to correcting for the additional 50,157 tons per year of SO<sub>2</sub>, some of the Class I Areas experienced better visibility improvement for the 20% best days under source-by-source BART than under CSAPR. These are represented as “Y-before.” By contrast, after correcting for the additional 50,157 tons per year of SO<sub>2</sub>, some of the Class I Areas experienced better visibility improvement for the 20% worst days under source-by-source BART than under CSAPR. These are represented as “Y-after.”

<sup>84</sup> Table 1 is an updated version of the analysis contained in EPA’s CSAPR BART Sensitivity Memo. To generate the table, we used EPA’s methodology to correct the “CSAPR +BART Elsewhere” columns to reflect the additional 50,157 tons per year SO<sub>2</sub> added to Texas’ CSAPR budget. We did this by applying the 0.73 proportionality constant EPA calculated in the CSAPR BART Sensitivity Memo to the 20% best and worst days. This analysis is presented in the spreadsheet titled “Change to TX BtB-50k SO<sub>2</sub> Addition-revised.xlsx” and attached as Ex. 11.

Third, during the rulemaking to remove Texas from CSAPR's SO<sub>2</sub> trading program – published on the same day that the Trading Rule was signed in 2017—EPA again confirmed that Texas SO<sub>2</sub> emissions under BART would be dramatically lower than under CSAPR. Specifically, EPA found that requiring Texas sources to install BART would reduce SO<sub>2</sub> emissions by between 127,300 and 177,800 tons relative to emissions under CSAPR. 81 Fed. Reg. at 78,963. EPA concluded that removing Texas sources from CSAPR and requiring them to install BART controls would “improv[e] projected air quality in this scenario relative to projected air quality in both the Nationwide BART scenario and the base case scenario (in which the projected SO<sub>2</sub> emissions from Texas EGUs would not change).” *Id.*

In short, in three separate rulemakings—the January 2017 source-specific BART proposal for Texas, the Better-than-BART rulemaking, and the withdrawal of Texas from CSAPR—EPA has found that CSAPR results in higher SO<sub>2</sub> emissions from Texas generating units than BART. This remains true regardless of whether CSAPR is compared to presumptive BART or source-specific BART.<sup>85</sup> As shown in the table above, the significantly higher emissions under CSAPR translate into greater visibility impairment in the region's Class I areas. EPA's own analyses therefore refute the agency's claim that the Trading Rule, which allows “SO<sub>2</sub> emissions from Texas EGUs . . . similar to emissions anticipated under CSAPR,” 82 Fed. Reg. at 48,327, would achieve greater reasonable progress than BART. Contrary to EPA's claims, the “clear weight of evidence” demonstrates that the intrastate trading program will achieve *less* reasonable progress than BART. The Trading Rule therefore violates the Regional Haze Rule, 40 C.F.R. § 51.308(e)(2), (e)(2)(i)(E), (e)(3).

## **2. The Trading Rule Allows SO<sub>2</sub> Emissions to Increase, Whereas BART Would Require Emissions Reductions.**

Instead of requiring emissions reductions, the Trading Rule authorizes an increase in SO<sub>2</sub> emissions. EPA could have named its program, “Status quo with room to grow.” Both source-specific and presumptive BART would require substantial emissions reductions relative to the Trading Rule's cap. Further, the Trading Rule is designed in such a way that it will not provide external pressure for emissions reductions to go below the cap. EPA cannot possibly prove that the Trading Rule makes greater reasonable progress than BART.

### **a. The Trading Rule would allow SO<sub>2</sub> emissions to increase.**

The total allocations for all of the sources that participate in the trading program is 238,393 tons of SO<sub>2</sub> per year,<sup>86</sup> plus a Supplemental Allowance pool of 10,000 tons, for a

---

<sup>85</sup> While we have mentioned EPA's original and updated Better than BART analyses, and updated such analyses in Table 1, we do not agree that presumptive BART is the appropriate benchmark to use in an analysis of whether an alternative makes greater reasonable progress than BART. We refer to EPA's use of presumptive BART in the Better than BART analyses only to point out that even presumptive BART achieves greater reasonable progress than CSAPR—and, by extension, the even more permissive Trading Rule—in Texas. For the Trading Rule, EPA should have compared visibility improvement under the Trading Rule versus source-specific BART limits. In addition, while in Table 1 we update EPA's approach to assessing visibility impacts, we do not support that approach. To accurately compare visibility impacts from the Trading Rule and BART, EPA must conduct new modeling.

<sup>86</sup> See 83 Fed. Reg. at 43,600.

maximum total annual allocation of 248,393 tons.<sup>87</sup> However, EPA notes that the “Supplemental Allowance pool may grow over time,” such that the “total number of allowances that can be allocated in a single year is therefore 293,104, which is the sum of the 238,393 budget for existing units plus 54,711.”<sup>88</sup>

The SO<sub>2</sub> emissions of the units that would participate in its SO<sub>2</sub> trading program were 236,754 tons in 2015, 218,291 tons in 2016 and 245,870 tons in 2017.<sup>89</sup> The Trading Rule authorizes sources to emit as much as 293,104 tons, which is a 47,234 ton increase over 2017 emissions, and a 74,813 ton increase over 2016 emissions..<sup>90</sup> Even if one disregards the potential growth in the Supplemental Allowance Pool (from an initial 10,000 tons to 54,711 tons), and uses 248,393 tons as the total number of allowances, the Trading Rule still authorizes an increase in emissions over actual emissions in 2015, 2016, and 2017. In short, the Trading Rule would not only fail to require greater reasonable progress than BART, it would unreasonably authorize greater pollution than the status quo.

As EPA indicates, the SO<sub>2</sub> emissions of the units that would participate in its SO<sub>2</sub> trading program increased from 218,291 tons in 2016 to 245,870 tons in 2017, or by 27,579 tons.<sup>91</sup> It is notable that had EPA’s SO<sub>2</sub> trading program been in effect in 2016, it would not have prevented this increase. The participating units would still have been under the generous cap EPA has provided for them.

EPA solicits comment on limiting the Supplemental Allowance Pool to 41,335 tons, noting that it would subtract “the annual allocation for the participating units that have been permanently retired as of January 1, 2019.”<sup>92</sup> However, this would still result in participating sources emitting 33,858 tons of SO<sub>2</sub> more than what they emitted in 2017 (238,393 + 41,335 – 245,870), and 61,437 more tons of SO<sub>2</sub> than in 2016 (238,393 + 41,335 – 218,291), and 42,974 more tons of SO<sub>2</sub> than in 2015 (238,393 + 41,335 – 236,754). As we discuss elsewhere, a Supplemental Allowance Pool as part of EPA’s trading program only adds to its absurdity.

EPA claims that the Trading Rule would decrease SO<sub>2</sub> emissions relative to 2014 emission levels. *See, e.g.*, 83 Fed. Reg. at 43,598-99. EPA’s sole rationale for selecting 2014 as the baseline emissions year for comparing the Trading Rule to BART is that “Texas sources were subject to the CSAPR SO<sub>2</sub> trading program in 2015 and 2016 but are no longer subject to that program. We therefore select 2014 as the appropriate most recent year for this comparison.” *Id.* at 43,598 n.82. EPA’s “explanation” is incoherent, at best. If EPA is trying to select a baseline emission year in which Texas sources were not subject to CSAPR for SO<sub>2</sub>, EPA should use 2017, because that is the most recent year for which annual emissions data is available and in

---

<sup>87</sup> *See id.*

<sup>88</sup> *See id.* at 43,601.

<sup>89</sup> *See id.* at 43,591.

<sup>90</sup> The Trading Rule may authorize even larger increases in emissions, because the Supplemental Allowance pool “is limited to a maximum 54,711 tons plus the amount of any allowances placed in the pool that year from retired units and corrections.” 83 Fed. Reg. at 43,598.

<sup>91</sup> *See* 83 Fed. Reg. at 43,600, tbl. 7.

<sup>92</sup> *See id.* at 43,604.

which Texas sources were not part of CSAPR for SO<sub>2</sub>. EPA provides no justification for failing to compare the covered sources' actual emissions in 2017 with the emissions authorized by the Trading Rule. EPA arbitrarily declined to select 2017 as the baseline year for determining whether the Trading Rule would reduce emissions and improve visibility.

In short, because the Trading Rule authorizes covered sources to increase emissions relative to actual emissions in 2015, 2016, and 2017, the Trading Rule cannot possibly achieve greater reasonable progress than source-specific BART, which would significantly reduce emissions.<sup>93</sup> Indeed, by allowing sources to increase their emissions, the Trading Rule will result in no progress at all toward the goal of eliminating haze pollution in direct violation of the Clean Air Act's visibility mandate.

**b. The Trading Rule fails to include measures that are essential to reducing SO<sub>2</sub> emissions.**

As described throughout these comments, the Trading Rule suffers from multiple legal flaws, each of which is an independent reason that the Rule does not satisfy the Clean Air Act and the Regional Haze Rule. This subsection describes additional flaws in the structure of the Trading Rule that will result in emissions from covered sources either staying at current levels or increasing. To be clear, even if EPA revised the Trading Rule to include some or even all of the features described below, the Trading Rule would still not be a lawful BART Alternative, given the many other legal deficiencies described in these comments. Moreover, even a "successful" cap and trade program cannot avoid localized impacts to particular Class I Areas (much less to local communities most impacted by large pollution sources). But the numerous flaws identified below shows that the Trading Rule is not even an attempt to establish a cap and trade program that might actually reduce emissions beyond the overall cap.

There have been many examinations of EPA's Acid Rain Program (ARP) and CSAPR programs that note their successes and discuss opportunities for improvement.<sup>94</sup> The Trading Rule does not incorporate any of these "lessons learned" in constructing its SO<sub>2</sub> trading program

---

<sup>93</sup> EPA explains in its BART FIP TSD that the 194,000 tons per year figure is the "[s]um of estimated reductions due to all proposed controls calculated from a baseline of the 2011-2015 five year average of the SO<sub>2</sub> annual emissions, excluding the maximum and minimum values." BART FIP TSD at 2, n.7. We recognize that the Trading Rule finalized in 2017 and proposed here uses a different emission baseline and partially applies to other sources than the source-specific BART proposal; however, source-specific BART would reduce emissions regardless of the baseline because it requires lower source-specific emission rates.

<sup>94</sup> See, e.g., EPA Office of Air and Radiation, "Tools of the Trade, A Guide to Designing and Operating a Cap and Trade Program for Pollution Control," (June 2003), EPA430-B-03-002, *available at* <https://www.epa.gov/sites/production/files/2016-03/documents/tools.pdf>. Richard Schmalensee & Robert N. Stavins, *The SO<sub>2</sub> Allowance Trading System: The Ironic History of a Grand Policy Experiment*, 27:1 *Journal of Economic Perspectives*. Richard Schmalensee, *Lessons Learned from Three Decades of Experience with Cap-and-Trade*, *Review of Environmental Economics and Policy*, 15-51 (Nov. 2015) (discussion paper). David A. Evans & Richard Woodward, *What Can We Learn from the End of the Grand Policy Experiment? The Collapse of the National SO<sub>2</sub> Trading Program and Implications for Tradable Permits as a Policy Instrument*, 5 *Annu. Rev. Resour. Econ.* 325-48 (2013). Dallas Burtaw & Sara Jo Szambelan, *U.S. Emissions Trading Markets for SO<sub>2</sub> and NO<sub>x</sub>*, *Review of Environmental Economics and Policy*, 9-40 (Oct. 2009) (discussion paper). Christina Hood, *Reviewing Existing and Proposed Emissions Trading Systems*, *International Energy Agency Information Paper* (Nov. 2010).



and tailoring it to regional haze. The result is a program that will not reduce SO<sub>2</sub> emissions, and is in fact designed to allow those emissions to increase.

*i. The importance of setting a cap that is lower than actual emissions*

EPA's cap is so high that it actually allows for the participating units to increase their SO<sub>2</sub> emissions. This violates the fundamental reason for any emission control program. The importance of setting an ambitious cap is one of the most oft-cited features of an effective cap and trade program. For instance, Hood states:<sup>95</sup>

If there is to be a market demand for allowances (and hence a market price), the system must be initially "short" – that is, the cap on emissions must be less than projected levels of emissions.

Setting initial caps close to projected BAU [business as usual] emissions has sometimes led to problems with oversupply of allowances, when emissions levels have turned out to be lower than the level of the cap. A surplus of allowances can cause the market price to crash, leading to perceptions that emissions trading as a tool has failed.

Similarly, Schmalensee states, "It is clear from theory and experience that a robust market requires a cap that is significantly below BAU emissions."<sup>96</sup>

EPA itself has recognized the importance of correctly setting the cap or baseline when it stated in its own guide for designing cap and trade programs:<sup>97</sup>

Setting the level of the emission cap is one of the most important decisions for policymakers and the regulating authority. In theory, the most economically efficient level for the emission cap is where marginal abatement costs are equal to marginal benefits from the reduced emissions (see Appendix A for further discussion). However, this level is often difficult to determine due to uncertain information. More generally, the cap should be set at a level that is expected to address the environmental and health problems of concern at an acceptable cost.

EPA has amassed an enormous amount of information concerning the "benefits of reduced emissions" in the form of the impacts of Texas EGU emissions on visibility at Class I Areas in Texas and other States.<sup>98</sup> However, EPA has given no consideration to this important

---

Christina Hood, *Reviewing Existing and Proposed Emissions Trading Systems*, International Energy Agency Information Paper, 37-38 (Nov. 2010).

<sup>96</sup> Richard Schmalensee, *Lessons Learned from Three Decades of Experience with Cap-and-Trade*, Review of Environmental Economics and Policy, 15-51 (Nov. 2015) (discussion paper).

<sup>97</sup> EPA Office of Air and Radiation, "Tools of the Trade, A Guide to Designing and Operating a Cap and Trade Program for Pollution Control" at 3-8 (June 2003), EPA430-B-03-002, *available at* <https://www.epa.gov/sites/production/files/2016-03/documents/tools.pdf>.

<sup>98</sup> See 82 Fed. Reg. at 938, Section IV.

issue when setting the emission for the Trading Rule, because the current proposal contains no discussion or weighing of pros and cons of different emissions caps. EPA simply adopted the covered sources' SO<sub>2</sub> CSAPR allowances without considering the size of the overall cap and what benefits a reduced cap could bring. Then EPA inflated this cap even further with its Supplemental Allowance Pool. EPA's cap is above business as usual ("BAU") emissions, when it should have been below BAU emissions. As we note elsewhere, if implemented, this flooding of the allowance market will likely result in allowance prices that are so low that there will be no incentive for covered sources to install SO<sub>2</sub> controls (or otherwise reduce SO<sub>2</sub> emissions).

*ii. Elimination of the supplemental allowance pool*

EPA's addition of a Supplemental Allowance Pool, to provide compliance assistance to subject units and sources, serves to inflate the cap and devalue allowances. The Trading Rule reflect that EPA is more concerned with assuring that units have allowances to cover whatever level of emissions they want to emit than with designing a program to reduce SO<sub>2</sub> emissions. EPA should have set a cap below BAU levels that would have incentivized SO<sub>2</sub> reductions. EPA should have never included a Supplemental Allowance Pool.

*iii. Reforms to EPA's allowance distribution methodology*

An obvious consequence of the Trading Rule is that even if it eliminated its Supplemental Allowance Pool and lowered its cap to below BAU levels, it would still do nothing to anticipate and counter external market forces. A myriad of potential externalities could result in devaluation of the SO<sub>2</sub> allowance market. EPA's failure to incorporate into the Trading Rule any of the features discussed below ensures that the Trading Rule will not reduce emissions and will not make any progress, much less reasonable progress, toward eliminating haze.

*a) Implementation of a declining SO<sub>2</sub> emissions cap*

A regular declining cap has a number of advantages: (1) it provides for known, predictable declines in SO<sub>2</sub>, (2) it can counter externalities that may work to make the trading market irrelevant, and (3) it allows the participating EGUs time to plan and adjust. EPA did just this in its Group 1 SO<sub>2</sub> CSAPR program, when it implemented a decreased SO<sub>2</sub> budget for the Group 1 states in a Phase II revision. EPA failed to do this in the Trading Rule.

*b) Implementation of an allowance price floor*

An allowance price floor can ensure that allowances retain a minimum value that helps maintain program relevance even in the face of competing regulations, low gas prices, unforeseen energy market trends, etc. As Burtraw notes regarding the ARP:<sup>99</sup>

If a price floor one-third below anticipated allowance prices had been in place, it would have triggered additional emissions reductions that would have led to additional social benefits of \$8 billion per year over the last decade. The inability

---

<sup>99</sup> Dallas Burtraw & Sara Jo Szambelan, *U.S. Emissions Trading Markets for SO<sub>2</sub> and NO<sub>x</sub>*, Review of Environmental Economics and Policy, 9-40 (Oct. 2009) (discussion paper).

of the program to adapt to information about the marginal cost of emissions reductions that is revealed in the allowance price is an important flaw as cap-and-trade has been implemented to date in environmental policy.

The Trading Rule fails to include an allowance price floor in its SO<sub>2</sub> trading program.

*c) Regular recalculation of each unit's allowances*

The Trading Rule lacks a provision regarding the regular recalculation of allowances that are awarded. Section 97.911 provides that the same number of allowances is awarded to each unit every year. This only serves to preserve the status quo and does not encourage SO<sub>2</sub> reduction. Regular recalculating of allowances in a “use it or lose it” fashion, in conjunction with a declining cap, would encourage SO<sub>2</sub> reduction. This could be done perhaps every three years using a similar methodology to how EPA initially awarded allowances under SO<sub>2</sub> CSAPR. As we discuss elsewhere, we have already recalculated allowances using that methodology using updated emission data, and provide our calculations as part of our comments.

*d) Units that Retire*

In addition, the Trading Rule fails to include a requirement that allowances be immediately forfeited on retirement. EPA's rules governing source-by-source BART provide for a straightforward and logical method of treating retired units—once retired, that unit's emissions are gone forever. Retiring sources of pollution are treated under a remaining useful life analysis: through a five-factor analysis, an enforceable retirement date may negate the need for additional pollutant control on the premise that it may not be cost effective to compel the installation of new or upgraded controls where a facility would be retired in the near term. *See* 70 Fed. Reg. at 39,169-70. The regulatory authority that allowed for those emissions cannot be transferred to another pollution source because the source-by-source BART determination is specific to that source. As a consequence of this straight forward approach, each source's impact on the visibility at Class I Areas can be determined.

In contrast, EPA's Trading Rule provides ongoing life support for an EGU's SO<sub>2</sub> allowance beyond its retirement. For instance, Section 97.911(a)(2) states that a unit that does not operate for two years will lose its allowance allocation in its fifth year following the first year of non-operation. Some of the EGUs already operate seasonally and it is quite possible others will do so in the future. Therefore, conditioning the forfeiture of allowances to two entire years of zero hours of operation is an unrealistic metric that is easily gamed. An EGU that is otherwise uncompetitive could operate for only a few hours a year and thus retain its entire allowance allocation. That allowance could be traded, thus devaluing the allowance market.

A better approach would have been to require a regular recalculation of allowances, based on each unit's most recent history as we discuss above. This would also make moot the arbitrary 5-year wait for allowance retirement, which only serves to inflate the allowance market and devalue it. Furthermore, if a previously retired unit resumes operation, it should have to purchase allowances from the general allowance pool, instead of being able to purchase allowances from the Supplemental Allowance pool, as provided under Section 97.905(b)(4). No allowances from retired units should be transferred into the Supplemental Allowance Pool.

Retired allowances should be just that—retired, and removed from the allowance pool. To do otherwise devalues allowances and disincentivizes SO<sub>2</sub> reductions.

- e) *Unlimited banking of allowances that never expire should be ended.*

Section 97.926 provides for unlimited banking of allowance that never expire. Given how generous EPA is in distributing allowances, this is unnecessary. Banking of allowances discourages SO<sub>2</sub> reductions and devalues the allowance market. Also, banking of allowances proportionately favors companies with more units, as it allows them more freedom from reducing SO<sub>2</sub> (via inter-company allowance transfers) over companies with fewer units. The Trading Rule fails to limit the amount of allowances any one company can accumulate and to place an expiration date on unused allowances.

- iv. *The price of Trading Rule allowances will likely be so low that there will be no incentive to install pollution controls or otherwise reduce emissions below the emissions cap.*

EPA has failed to request comment on, or otherwise consider, the projected price of allowances under the Trading Rule, and the impact of allowance prices on emissions reductions (or the lack thereof). As explained elsewhere, various features of the Trading Rule are likely to result in allowance prices that are so low that units have no incentive to reduce emissions below the level of emissions for which allowances are allocated. This is yet another reason that the Trading Rule will not reduce SO<sub>2</sub> emissions.

According to EPA, a fundamental tenet of any cap and trade program is that, “the cap and associated allowance market creates a monetary value for allowances, providing sources with a tangible incentive to decrease emissions.”<sup>100</sup> This is perhaps the single most important aspect of a successful emissions trading program, because if market forces do not adequately value allowances, there is little to no incentive for sources to install pollution controls or take other measures to reduce emissions.

Unfortunately, that is exactly what has happened to EPA’s two premier SO<sub>2</sub> cap and trade programs, the ARP and CSAPR.<sup>101</sup>

- ARP SO<sub>2</sub> allowance prices averaged less than \$1 per ton in 2016.
- CSAPR SO<sub>2</sub> Group 1 allowance prices started 2016 at \$2.75 per ton and ended 2016 at \$5.25 per ton.

---

<sup>100</sup> EPA Office of Air and Radiation, “Tools of the Trade, A Guide to Designing and Operating a Cap and Trade Program for Pollution Control” at 1-3 (June 2003), EPA430-B-03-002, *available at* <https://www.epa.gov/sites/production/files/2016-03/documents/tools.pdf>.

<sup>101</sup> EPA, 2016 Program Progress, Cross State Air Pollution Rule and Acid Rain Program at 51, *available at* [https://www3.epa.gov/airmarkets/progress/reports/pdfs/2016\\_full\\_report.pdf](https://www3.epa.gov/airmarkets/progress/reports/pdfs/2016_full_report.pdf).

- CSAPR SO<sub>2</sub> Group 2 allowance prices started 2016 at \$5 per ton and ended 2016 at \$5.25 per ton.
- CSAPR NO<sub>x</sub> annual program allowances started 2016 at \$80 per ton and ended 2016 at \$6 per ton.
- CSAPR NO<sub>x</sub> ozone season program allowances started 2016 at \$182.5 per ton and ended 2016 at \$142.5 per ton.

As can be seen from the above data, the 2016 average price of SO<sub>2</sub> allowances for the ARP was less than \$1 per ton, making them almost worthless. Although the ARP was successful for many years, it no longer provides any incentive to reduce SO<sub>2</sub>.

Similarly, CSAPR SO<sub>2</sub> allowances ranged between \$2.75 and \$5.25 per ton in 2016, providing little to no regulatory pressure to control SO<sub>2</sub>. CSAPR Group 1 and Group 2 SO<sub>2</sub> allowance prices have continued their downward slide and were recently trading for \$2.50 and \$3.00/ton, respectively.<sup>102</sup> EPA concedes this point when it states in relation to the above pricing, “CSAPR allowance prices were well below the marginal cost for reductions projected at the time of the final rule, and are subject, in part, to downward pressure from the available bank of allowances.”<sup>103</sup> In other words, it was cheaper to buy allowances than to reduce SO<sub>2</sub> emissions. Assuming the top end of this range, and a 30,000 ton reduction,<sup>104</sup> compliance would have only cost an EGU owner \$157,500 (\$5.25/ton X 30,000 tons = \$157,500). In comparison, EPA estimated in its January 4, 2017 BART FIP that a SO<sub>2</sub> scrubber capable of reducing these 30,000 tons would cost \$259,141,000.<sup>105</sup> This is over 1,600 times more expensive than simply purchasing the necessary allowances. To be sure, a SO<sub>2</sub> scrubber is not the only control an EGU could employ (although it would have been necessary to remove the entire 30,000 tons of SO<sub>2</sub> from the EGU in question). However, allowances at \$5.25/ton are at least hundreds of times cheaper than any other control EPA evaluated.

There are many reasons why the price of allowances can collapse. In the case of the ARP, this is primarily due to external market forces that were unanticipated by the program. As the figure below indicates, much of the collapse of the ARP SO<sub>2</sub> allowance market was in fact due to the effect of CAIR, CSAPR, litigation of these programs, and although not shown on the graph, the National Ambient Air Quality Standards (“NAAQS”) and Mercury and Air Toxics Standards (“MATS”) programs.<sup>106</sup> In other words, trading programs do not operate in a vacuum. There are a number of externalities that can serve as drivers to EGU owners for making economic decisions, including other regulatory programs. Trading programs can, however,

---

<sup>102</sup> Megawatt Daily at 6 (July 18, 2018).

<sup>103</sup> EPA, 2016 Program Progress, Cross State Air Pollution Rule and Acid Rain Program at 51, available at [https://www3.epa.gov/airmarkets/progress/reports/pdfs/2016\\_full\\_report.pdf](https://www3.epa.gov/airmarkets/progress/reports/pdfs/2016_full_report.pdf).

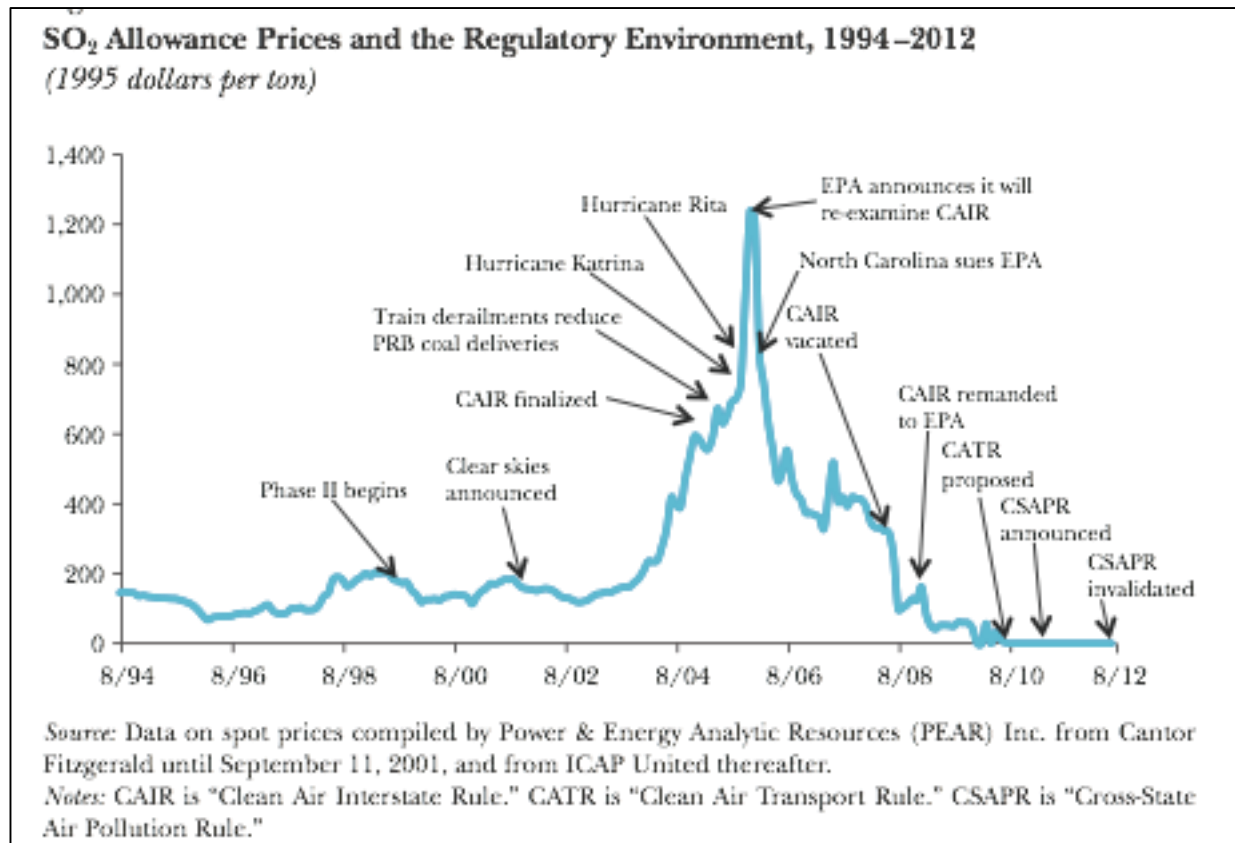
<sup>104</sup> See 82 Fed. Reg. 926, tbl. 10 (29,998 tons is the maximum that EPA proposed be reduced for any EGU covered in its January 4, 2017 proposed BART FIP. Big Brown Unit 2, wet FGD).

<sup>105</sup> See BART FIP TSD at tbl. 29 (Summary of Wet FGD Cost Model Results).

<sup>106</sup> Richard Schmalensee and Robert N. Stavins, *The SO<sub>2</sub> Allowance Trading System: The Ironic History of a Grand Policy Experiment*, 27:1 Journal of Economic Perspectives, 114, fig. 2.

remain pertinent if they contain minimum allowance prices—a feature that the ARP, CSAPR, and the Trading Rule lack.<sup>107</sup>

### The Collapse of the SO<sub>2</sub> Allowances Market in the Acid Rain Program



EPA has stated that it modeled the Trading Rule after the CSAPR SO<sub>2</sub> trading program. As a result, it is reasonable to conclude that the same or similar factors responsible for the collapse of the CSAPR SO<sub>2</sub> allowance market will come to bear on the Trading Rule. Yet EPA has taken no steps to prevent that from happening. Also, EPA's plan to flood the market with an excess of allowances will only decrease demand for, and further devalue, allowances. In summary, it is likely that the price of SO<sub>2</sub> allowances will be so low there will be little to no regulatory incentive for participating sources to reduce SO<sub>2</sub> emissions below the overall cap, *if* a moment came where reductions were required to comply with the Trading Program.

<sup>107</sup> In addition, units have reduced operation of existing NO<sub>x</sub> controls after the price of NO<sub>x</sub> allowances dropped under the several different trading programs. See <https://www.tandfonline.com/doi/full/10.1080/10962247.2015.1112317>

**3. EPA’s “CSAPR Better than BART” analysis does not show and cannot be used to show that the Trading Rule achieves greater reasonable progress than BART.**

**a. The “CSAPR Better than BART” analyses upon which the Trading Rule relies demonstrate that source-specific BART would make greater reasonable progress than CSAPR for Texas**

EPA claims that because the agency concluded that CSAPR achieves greater reasonable progress than BART when averaged across all affected states, CSAPR necessarily achieves greater reasonable progress than BART in Texas. EPA’s conclusion mischaracterizes both the law and the facts.

To begin, the legal test that EPA used during the original “Better than BART” rulemaking is fundamentally different than the test EPA must use here. EPA purported to show that CSAPR achieves greater reasonable progress than BART under 40 C.F.R. § 51.308(e)(3), which requires that: “Visibility does not decline in any Class I area” and there “is an overall improvement in visibility, determined by *comparing the average differences* between BART and the alternative over all affected Class I areas.” Pursuant to this test, EPA has never attempted to prove that CSAPR achieves better reasonable progress than BART at every Class I area or in every state. Instead, EPA has tried to show only that CSAPR achieves greater visibility improvement than BART when the visibility impacts of each program are averaged across all Class I areas. See, e.g., 77 Fed. Reg. at 33,650. Given that EPA averaged the visibility improvement from CSAPR over all the affected Class I areas in the eastern half of the country, Texas was able to take advantage of reductions from other states without having to reduce its SO<sub>2</sub> emissions as much as it would have had to do under source-by-source BART.

By contrast, the legal test for the Trading Rule cannot rest on improvements from CSAPR in other states. Instead, EPA must demonstrate that the Trading Rule is superior to BART in Texas alone (*i.e.*, when examining the visibility improvement at only the Class I areas affected by Texas sources). See 40 C.F.R. § 51.308(e)(2)(i), (e)(3).

If EPA had been required to demonstrate that CSAPR achieved greater reasonable progress than BART in only the Class I areas affected by Texas, EPA could not have made this demonstration. This is clear from even a cursory examination of the Technical Support Document for the CSAPR better-than BART demonstration.<sup>108</sup> Below we present Table 2-4 of that document:

---

<sup>108</sup> EPA, Technical Support Document for Demonstration of the Transport Rule as a BART Alternative, U.S. Environmental Protection Agency (December 2011), Docket ID No. EPA-HQ-OAR-2011-0729-0014, *available at* <https://www.regulations.gov/document?D=EPA-HQ-OAR-2011-0729-0014> [hereinafter the “CSAPR Better than BART TSD”].

**Table 2-4.** 2014 Annual SO<sub>2</sub> Emissions in the Transport Rule Region and Non-Transport Rule Region States for the 2014 base case and each Control Scenario  
(Figures are in thousands of tons)

Transport Region States	2014 Base Case	Nationwide BART	Transport Rule + BART-elsewhere	Non-Transport Region States	2014 Base Case	Nationwide BART	Transport Rule + BART-elsewhere
Alabama	417.3	181.5	168.5	Arkansas	99.4	38.1	39.7
Georgia	170.3	151.4	93.6	Arizona	35.6	24.6	24.6
Illinois	141.6	116.1	133.7	California	7.3	7.4	7.3
Indiana	727.8	454.5	202.9	Colorado	62.1	22.4	26.6
Iowa	133.1	43.9	83.8	Connecticut	3.8	1.9	1.9
Kansas	69.8	19.8	49.1	Delaware	2.2	2.1	2.1
Kentucky	488.0	164.9	125.4	Florida	143.6	77.5	79.8
Maryland	42.9	36.5	28.6	Idaho	0.2	0.2	0.2
Michigan	269.4	141.4	174.3	Louisiana	118.2	81.2	92.6
Minnesota	70.9	56.5	50.1	Maine	2.4	2.6	2.4
Missouri	390.3	107.9	181.8	Massachusetts	13.4	8.4	8.4
Nebraska <sup>9</sup>	73.1	32.9	71.2	Mississippi	31.0	16.3	17.8
New Jersey	38.9	26.1	6.1	Montana	15.4	5.9	6.7
New York	42.9	42.1	18.8	Nevada	14.4	14.8	14.8
North Carolina	126.0	130.9	74.0	New Hampshire	6.5	4.7	5.2
Ohio	851.2	546.7	190.0	New Mexico	11.9	10.8	11.7
Pennsylvania	509.6	222.6	134.5	North Dakota	103.6	37.7	37.0
South Carolina	213.3	114.0	101.5	Oklahoma	138.0	41.4	41.4
Tennessee	284.5	321.3	66.7	Oregon	11.3	0.2	0.2
<b>Texas</b>	<b>453.3</b>	<b>139.3</b>	<b>266.6</b>	Rhode Island	0	0.0	0.0
Virginia	77.3	78.7	53.9	South Dakota	29.7	2.4	2.5
West Virginia	498.5	165.1	90.4	Utah	33.5	32.7	32.1
Wisconsin	130.5	52.1	51.4	Vermont	0.3	0.3	0.3
				Washington	3.4	3.4	3.4
<b>Total</b>	<b>6,220.50</b>	<b>3,346.20</b>	<b>2,416.90</b>	Wyoming	51.8	37.2	42.9
				<b>Total</b>	<b>939.00</b>	<b>474.20</b>	<b>501.60</b>

The left side of this table summarizes the SO<sub>2</sub> emissions for the states that participated in CSAPR at the time (December 2011)—the Transport Region States. Three annual SO<sub>2</sub> emissions columns are presented:

- A 2014 base case which, “contains emissions for 2014 based on predicted growth and existing emissions controls,<sup>109</sup>

<sup>109</sup> CSAPR Better than BART TSD at 12.



- A Nationwide BART case which, “examined SO<sub>2</sub> and NO<sub>x</sub> emissions from all EGUs nationwide after the application of BART controls to all BART-eligible EGUs.”<sup>110</sup>
- A Transport Rule + BART-elsewhere case in which, “SO<sub>2</sub> and NO<sub>x</sub> emissions reductions attributable to the Transport Rule were applied in the 28-state Transport Rule region and BART controls were applied to all BART-eligible EGUS outside the Transport Rule region that are not subject to Transport Rule requirements.”<sup>111</sup> Note “Transport Rule” is CSAPR.

A comparison of the annual emissions modeled for Texas in Table 2-4 shows that the annual emissions for Texas under the Transport Rule + BART-elsewhere case (266,600 tons per year) are almost double what would have occurred under the Nationwide BART case (139,300 tons per year). A similar table for NO<sub>x</sub>, however, reveals that these figures are almost identical,<sup>112</sup> indicating that Texas’ performance (or lack thereof) in CSAPR better-than-BART is due to the influence of its SO<sub>2</sub> emissions. EPA later added 50,157 tons of SO<sub>2</sub> to Texas’ budget to account for errors it had made in its CSAPR analysis,<sup>113</sup> bringing the total for the Transport Rule + BART-elsewhere case to well over double what would have occurred under the Nationwide BART case. Together these points indicate that Texas was an obvious drag on the CSAPR better-than-BART demonstration, so that the CSAPR better-than-BART demonstration would have worked better had Texas not participated in CSAPR. In fact, EPA said as much when it removed Texas from CSAPR:<sup>114</sup>

Treating Texas EGUs in the CSAPR + BART-elsewhere scenario as subject to SO<sub>2</sub> BART instead of CSAPR SO<sub>2</sub> requirements would therefore have reduced projected SO<sub>2</sub> emissions by between 127,300 tons and approximately 177,800 tons in this scenario, *thereby improving projected air quality in this scenario relative to projected air quality in both the Nationwide BART scenario and the base case scenario* (in which the projected SO<sub>2</sub> emissions from Texas EGUs would not change).<sup>59</sup>

EPA tries to avoid the conclusion that the Trading Rule is far worse than BART by citing to its 2012 Sensitivity Analysis Memo that indicated that Texas could emit as much as 317,100 tons of SO<sub>2</sub> and CSAPR would remain better-than-BART. But EPA blatantly misrepresents and misapplies that information. The fact that CSAPR would purportedly remain better-than-BART under such an increase in Texas emissions is a reflection of the size and location of the projected emission reductions in many of the other participating states. Such a mitigating influence does not exist under EPA’s Trading Rule. Also, the visibility improvement discussed in that memo, like CSAPR better-than-BART, was averaged across Class I areas located in the participating states. Again, EPA cannot count on the mitigating effect of other states’ reductions and must assess visibility improvement (or lack thereof) at only the Class I areas affected by Texas’ emissions.

---

<sup>110</sup> *Id.* at 3.

<sup>111</sup> *Id.* at 3.

<sup>112</sup> *Id.* at tbl. 2-5.

<sup>113</sup> See CSAPR BART Sensitivity Memo at tbl. 2.

<sup>114</sup> 81 Fed. Reg. at 78,963.

In short, when only emissions from Texas sources are considered, the record contains no evidence that CSAPR would achieve greater reasonable progress than BART. Indeed, EPA has concluded just the opposite, that removing Texas from CSAPR for SO<sub>2</sub> emissions would dramatically reduce emissions and improve visibility. Thus, the “Better than BART” rulemakings provide no support for EPA’s claim that the Trading Rule will make greater reasonable progress than BART.

**b. EPA cannot claim that the Trading Rule is equivalent to “CSAPR better than BART” because the Trading Rule is not “functionally equivalent” to CSAPR, and EPA’s exclusion of CSAPR units is arbitrary.**

Our objections to EPA using a SO<sub>2</sub> CSAPR-like approach for BART aside, EPA’s reliance on the CSAPR better-than-BART demonstration is based on a false premise, that the Trading Rule is functionally equivalent to CSAPR—which is not accurate. EPA claims that because its BART alternative “has been designed to achieve SO<sub>2</sub> emission levels that are functionally equivalent to those projected for Texas’ participation in the original CSAPR program,”<sup>115</sup> it has demonstrated the “weight of evidence” required by section 51.308(e)(2)(i)(E). However, by using the term “functionally equivalent,” EPA admits that its Texas BART alternative demonstration is not actually equivalent to the CSAPR Better-than-BART demonstration, but is something different.

EPA later explains its use of the term “functionally equivalent” when it states, “Covered sources under the BART alternative in this FIP represent 89% of all SO<sub>2</sub> emissions from all Texas EGUs in both 2016 and 2017, and approximately 85% of CSAPR allocations for existing units in Texas.”<sup>116</sup> EPA lists points that it claims mitigates this discrepancy, but they do not overcome the differences between the two programs in a way that sufficiently addresses visibility concerns or that allows it to demonstrate a weight of evidence.<sup>117</sup>

On that basis and a Q/d analysis, EPA excludes from the Trading Rule a number of units that were covered under CSAPR. However, EPA presents no real analysis of the visibility impacts of these excluded units. Some of these excluded units have scrubbers or other types of SO<sub>2</sub> control,<sup>118</sup> but EPA has not evaluated them for possible upgrades, which was a significant part of the technical evaluation in its January 4, 2017 proposal. These include Oklaunion, W. A. Parish 8, Oak Grove Units 1 and 2, Twin Oaks Units 1 and 2, and Sandy Creek. In addition, we note several flaws in how EPA performed its Q/d analysis. All of these flaws point to arbitrary deviations from EPA’s original Q/d testing methodology:<sup>119</sup>

---

<sup>115</sup> 83 Fed. Reg. at 43,590.

<sup>116</sup> *Id.*

<sup>117</sup> *Id.* at 43,591-92.

<sup>118</sup> We are distinguishing between a scrubbing system such as a wet scrubber and various types of dry scrubbers (e.g., spray dryer absorber) that have absorbers versus lime or limestone injection in a circulating fluidized bed.

<sup>119</sup> See 83 Fed. Reg. at 43,595 (refer to discussion beginning on this page).

- EPA based its Q/d analysis on 2009 emissions without providing any reasoning for selecting that year of data, other than it already had it available from a previous analysis. Typically, EPA considers a 3-5 year range of data and attempts to account for data variability from year to year. Updated emission data is readily available from EPA's own site.<sup>120</sup> EPA's selection of year 2009 data is therefore arbitrary.
- Although the Twin Oaks facility had a Q/d greater than EPA's stated cutoff of 10, it was nonetheless excluded because EPA estimated that the Q/d of each of its units were likely less than 10. However, EPA's Q/d analysis for other sources was done on a facility basis and deviating from that in order to exclude a source is arbitrary.
- Oklaunion's Q/d was much higher than 10, at 85. Yet again, EPA arbitrarily deviates from its Q/d metric by stating, "Annual emissions of SO<sub>2</sub> in 2016 from this source were 1,530 tons, less than 1% of the total annual emissions for EGUs in the state and only 988 tons in 2017. The most recent emissions from this facility are small relative to other non-BART units included in the program and we have not included Oklaunion in the trading program."<sup>121</sup> Here, EPA considered SO<sub>2</sub> emissions from a year other than 2009—on which all of the Q/d analyses were based—when doing so suits its goal of excluding a unit. EPA also brings in a percentage cutoff that was also not used in considering other units. This deviation from its original Q/d test is arbitrary.

EPA excludes units that came online after 2009 because these units, "would be permitted and constructed using emission control technology determined under either BACT or LAER review, as applicable and we do not consider the potential visibility impacts from these units to be significant relative to those coal-fired EGUs participating in the program." EPA makes no comparison between the levels of control under BACT or LAER versus BART for these units. In fact, BART has been demonstrably more stringent than either BACT or LAER. This is easily ascertained by simply reviewing some of EPA's recent BART determinations in which SO<sub>2</sub> scrubbers are required at control levels at 95% or greater and comparing them to BACT and LAER determinations.

The opt-in provision is yet another feature of the Trading Rule that makes the Rule not functionally equivalent to CSAPR. EPA has included an opt-in provision in Section 97.904(b), and Section 97.911(b) describes how allowances for opt-in units shall be awarded.<sup>122</sup> For CSAPR, EPA removed the opt-in provision for good reasons. Chief among them, "EPA has determined that the inclusion of opt-in units in the Transport Rule trading programs would undermine the rule's objective of addressing emissions in each state that significantly contribute to nonattainment or interfere with maintenance in other states."<sup>123</sup> EPA further stated:

---

<sup>120</sup> See EPA, Air Markets Program Data, <https://ampd.epa.gov/ampd/> (last visited Oct. 25, 2018).

<sup>121</sup> 83 Fed. Reg. at 43,597.

<sup>122</sup> Note in regard to how allowances will be awarded to opt-in units, Section 97.911(b) references "a table" it states is found in Section 97.404(b)(1). We do not see such a table. In any event, Section 97.404(b) appears to be an error, as it references the Applicability section of the CSAPR NO<sub>x</sub> program.

<sup>123</sup> 76 Fed. Reg. at 48,276.

For example, after a unit would opt in, process or fuel changes made for economic reasons (rather than due to any regulatory requirements), or installation of new emission controls or fuel-switching conducted to meet future, non-Transport Rule regulatory requirements, could result in emission reductions that would have occurred “anyway” (i.e., even if the unit had not opted in), and the opt-in unit would be allocated allowances for the portion of its baseline emissions that would be removed by these “anyway” reductions. Allocations above the cap to opt-in units making “anyway” emission reductions would convert these reductions into extra allowances (i.e., authorizations to emit) usable by covered EGUs to meet their requirements to hold allowances for emissions.<sup>124</sup>

EPA further noted that “the final Boiler MACT rule, of course, is simply one example of how allocations for “anyway” reductions could occur and undermine the statutory requirements of the Transport Rule.”<sup>125</sup> EPA does not appear to have provided any provision in its SO<sub>2</sub> trading program to guard against such “anyway” reductions, which would further serve to inflate its already overly generous allowance pool. Consequently, the opt-in provision further undermines the Trading Rule.

In sum, the Trading Rule is not sufficiently similar to CSAPR for a simple comparison between Texas’ overall emissions to suffice for a weight of evidence determination. EPA excludes units that participated in SO<sub>2</sub> CSAPR without any real technical analysis of the visibility impacts of those units it is excluding. The above-cited examples of EPA’s arbitrariness in excluding units are why section 51.308(e)(3) exists—to quantify speculative claims of BART alternatives. By inappropriately relying on the CSAPR Better-than-BART demonstration, EPA is injecting section 51.308(e)(4), under which states were allowed to rely on CSAPR, into section 51.308(e)(2), the weight of evidence determination. This is effectively a reinterpretation of EPA’s rules and provides a compelling reason why EPA should have performed its Texas SO<sub>2</sub> BART determination under section 51.308(e)(3).

**c. In adopting the SO<sub>2</sub> CSAPR better-than-BART demonstration, EPA faces a Catch-22 that it cannot overcome.**

In designing CSAPR, EPA assigned state budgets and allocations based on unique circumstances that existed at that time, but which for Texas are now largely obsolete. EPA set state budgets to address states’ impacts on downwind states that were expected to have problems attaining or maintaining certain clean air standards. EPA removed Texas from the SO<sub>2</sub> portion of CSAPR, so the original impetus for assigning its budget is gone. In addition, the emissions for many of the units in question have changed significantly, and even the modeling platform EPA used in its CSAPR analysis is far out of date and effectively obsolete.<sup>126</sup>

---

<sup>124</sup> *Id.*

<sup>125</sup> *Id.*

<sup>126</sup> EPA used the IPM version 4.10 (<https://www.epa.gov/airmarkets/ipm-analyses-final-cross-state-air-pollution-rule-csapr>) and did not update it even after Texas’ SO<sub>2</sub> budget was increased by 50,157 tons. The current version of IPM is version 6 and previous versions included 5.13, 5.14, 5.15, and 5.16. IPM relies on the NEEDS database of basic geographic, operating, air emissions, and other data on EGUs, which is similarly out of date. Even planned

Elsewhere in our comments we provide more detail to these and other problems in EPA's reliance on SO<sub>2</sub> CSAPR to design the Trading Rule to satisfy BART. In its misguided zeal to mimic SO<sub>2</sub> CSAPR, EPA faced a Catch-22: Unlike what EPA typically does in analyzing BART, in developing its Trading Rule it did not account for new circumstances, updated emissions and other data, etc., because if it had, the way allowances were awarded would by necessity be different. Instead, EPA arbitrarily adopted the same CSAPR SO<sub>2</sub> allocations pointing to the CSAPR better-than-BART demonstration under section 51.308(e)(2)(i)(E) as justification, in lieu of performing a new demonstration under section 51.308(e)(3), as EPA should have done.

Below we illustrate how EPA's arbitrary deviation from its usual technical approach of using the most up-to-date data would have changed the allowance distribution of its Trading Rule. These updates include the retirements of Welsh 2; Big Brown Units 1 and 2; Monticello Units 1, 2, and 3; and Sandow 4 and 5. Additional updates could have included rule provisions for properly dealing with the impending retirement of the two JT Deeley units instead of its current method of treating "retired" allowances, which provides no incentive to reduce SO<sub>2</sub> emissions.<sup>127</sup>

CSAPR assigned allocations on the basis of a unit's heat input from 2006-2010, and its emissions from 2003-2010. EPA utilized a detailed ten-step approach in assigning allocations using the heat input and emissions from that period.<sup>128</sup> Had EPA re-applied the CSAPR allocation methodology using updated information, it would have discovered that the allocations in many instances would have changed significantly. We performed that analysis and summarize it below.<sup>129</sup> In so doing, we used the same number of years as in the original CSAPR methodology, but we shifted the year ranges forward to include updated information.

In the first case we analyzed, we did not remove retired units. We simply used the original CSAPR methodology to revise the CSAPR allocations while using updated data. In the summary tables below, EPA's current Texas SO<sub>2</sub> BART alternative allocations are in the fourth column from the left (EPA SO<sub>2</sub> BART Allocations) and our recalculated CSAPR allocations are in the third column from the left (Recalculated EPA TX SO<sub>2</sub> BART Allocations). The absolute value difference between those columns is in the right most column.

---

updates to IPM version 4.10 were extensive: [https://www.epa.gov/sites/production/files/2015-07/documents/planned\\_updates\\_to\\_ipm\\_v.4.10.pdf](https://www.epa.gov/sites/production/files/2015-07/documents/planned_updates_to_ipm_v.4.10.pdf).

<sup>127</sup> Instead of properly retiring allowances upon a unit's retirement, Section 97.911(a)(2) currently provides that a unit that does not operate for two years will lose its allowance allocation in its fifth year following the first year of non-operation. After that point, those allowances go into the Supplemental Allowance Pool where units can access them instead of reducing their SO<sub>2</sub> emissions.

<sup>128</sup> EPA, Allowance Allocation Final Rule TSD (June 2011), Docket ID No. EPA-HQ-OAR-2009-0491-4308, available at <https://www.regulations.gov/document?D=EPA-HQ-OAR-2009-0491-4308>.

<sup>129</sup> See "EPA SO<sub>2</sub> BART updated allocations CSAPR methodology.xlsx" excel spreadsheet attached as Ex. 11.

**Case 1, Updated EPA Texas SO<sub>2</sub> BART Alternative Updated Allocations Using CSAPR Methodology**

<b>Facility Name</b>	<b>Unit ID</b>	<b>Recalculated EPA TX SO<sub>2</sub> BART allowance (tons)</b>	<b>EPA TX SO<sub>2</sub> BART Allocations (tons)</b>	<b>Absolute Value Difference (tons)</b>
Big Brown	1	9,624	8,473	1,151
Big Brown	2	9,602	8,559	1,043
Coletto Creek	1	10,406	9,057	1,349
Graham	2	1	226	225
H W Pirkey Power Plant	1	7,339	8,882	1,543
Harrington Station	061B	4,744	5,361	617
Harrington Station	062B	4,752	5,255	503
Harrington Station	063B	5,062	5,055	7
J T Deely	1	6,027	6,170	143
J T Deely	2	5,973	6,082	109
Limestone	LIM1	12,186	12,081	105
Limestone	LIM2	13,678	12,293	1,385
Martin Lake	1	12,647	12,024	623
Martin Lake	2	11,511	11,580	69
Martin Lake	3	10,272	12,236	1,964
Monticello	1	5,256	8,598	3,342
Monticello	2	5,412	8,795	3,383
Monticello	3	10,402	12,216	1,814
Newman	2	1	1	0
Newman	3	1	1	0
Newman	4	2	2	0
O W Sommers	1	4	55	51
O W Sommers	2	5	7	2
Sam Seymour	1	9,330	7,979	1,351
Sam Seymour	2	10,166	8,019	2,147
Sadow	4	10,313	8,370	1,943
Stryker Creek	2	2	145	143
Tolk Station	171B	7,608	6,900	708
Tolk Station	172B	8,469	7,062	1,407
W A Parish	WAP4	2	3	1
W A Parish	WAP5	9,419	9,580	161
W A Parish	WAP6	10,277	8,900	1,377
W A Parish	WAP7	7,997	7,653	344
Welsh Power Plant	1	7,082	6,496	586
Welsh Power Plant	2	6,006	7,050	1,044
Welsh Power Plant	3	6,808	7,208	400
Wilkes Power Plant	1	3	14	11
Wilkes Power Plant	2	2	2	0
Wilkes Power Plant	3	2	3	1
<b>Totals</b>		<b>238,393</b>	<b>238,393</b>	<b>31,052</b>

In the first case, because we did not remove any of the units that had retired, the total allocations remained at 238,393 tons. However, because the emissions and heat inputs changed with the updated data, almost every unit's allocations changed, some by more than 3,000 tons.

**Case 2, Updated EPA Texas SO<sub>2</sub> BART Alternative Updated Allocations Using CSAPR Methodology and Removing Retired Units.**

<b>Facility Name</b>	<b>Unit ID</b>	<b>Recalculated EPA TX SO<sub>2</sub> BART allowance (tons)</b>	<b>EPA TX SO<sub>2</sub> BART Allocations (tons)</b>	<b>Absolute Value Difference (tons)</b>
Coleto Creek	1	10,081	9,057	1,024
Graham	2	1	226	225
H W Pirkey Power Plant	1	7,339	8,882	1,543
Harrington Station	061B	4,596	5,361	765
Harrington Station	062B	4,604	5,255	651
Harrington Station	063B	4,904	5,055	151
J T Deely	1	5,839	6,170	331
J T Deely	2	5,787	6,082	295
Limestone	LIM1	11,805	12,081	276
Limestone	LIM2	13,251	12,293	958
Martin Lake	1	12,252	12,024	228
Martin Lake	2	11,151	11,580	429
Martin Lake	3	9,951	12,236	2,285
Newman	2	1	1	0
Newman	3	1	1	0
Newman	4	2	2	0
O W Sommers	1	4	55	51
O W Sommers	2	5	7	2
Sam Seymour	1	9,039	7,979	1,060
Sam Seymour	2	9,848	8,019	1,829
Stryker Creek	2	2	145	143
Tolk Station	171B	7,370	6,900	470
Tolk Station	172B	8,204	7,062	1,142
W A Parish	WAP4	2	3	1
W A Parish	WAP5	9,125	9,580	455
W A Parish	WAP6	9,956	8,900	1,056
W A Parish	WAP7	7,748	7,653	95
Welsh Power Plant	1	6,861	6,496	365
Welsh Power Plant	3	6,595	7,208	613
Wilkes Power Plant	1	3	14	11
Wilkes Power Plant	2	2	2	0
Wilkes Power Plant	3	2	3	1
<b>Totals</b>		<b>176,332</b>	<b>176,332</b>	<b>16,456</b>

In the second case, we removed those units which had retired, but we retained the JT Deely units. Because of this, and the fact that the emissions and heat inputs changed with the updated data, again almost every unit's allocations changed. The total allocations were reduced from 238,393 tons to 176,332 tons. This represents a decrease of 62,061 tons or an approximately 26% change. Therefore, had EPA simply updated the emissions using the

original CSAPR methodology and removed the retired units' allocations,<sup>130</sup> its SO<sub>2</sub> trading program would not be as awash in excess allowances, which disincentivizes SO<sub>2</sub> reduction.

We object to EPA's use of section 51.308(e)(2)(i)(E), its failure to follow its own requirements in performing a weight of evidence determination under that section, and the EPA's use of CSAPR in its better-than-BART demonstration. Those objections notwithstanding, we suspect that EPA knows that it should have updated the allowances in its SO<sub>2</sub> trading program as we describe above. We further suspect that EPA realizes that had it done so, the result would have been a much different distribution of emissions than was assumed in SO<sub>2</sub> CSAPR. Thus, its already strained apples to oranges weight of evidence determination, in which it simply pointed to the CSAPR better-than-BART demonstration, would have evaporated.

## **V. IN ADDITION TO FAILING THE TEST FOR A BART ALTERNATIVE, THE TRADING RULE VIOLATES OTHER LEGAL REQUIREMENTS.**

In addition to failing to satisfy the requirements for a BART alternative, the Trading Rule is unlawful and arbitrary and capricious for other reasons, as explained below. The Trading Rule violates the Clean Air Act by providing that the mere submission of a SIP by the State of Texas authorizes EPA to effectively suspend the trading program. Moreover, the Trading Rule's treatment of units that have retired or will retire in the future fails to ensure reasonable progress, is inadequately explained, and will result in a high allowance pool with low allowance prices that provide no incentive to reduce emissions. Finally, the Supplemental Allowance Pool is arbitrary and capricious because the factual basis for treating Coletto Creek differently than other sources is no longer true, and the Supplemental Allowance Pool allows sources to increase emissions.

### **A. In Violation of the Clean Air Act, the Trading Rule Provides that the Mere Submission of a SIP Would Suspend Key Parts of the Rule.**

The Trading Rule is unlawful because it allows EPA to suspend key provisions of the intrastate trading program if Texas merely submits a SIP revision (*i.e.*, in situations where the SIP revision has been submitted for review, but not approved by EPA). The Rule provides that the "Administrator may delay recordation of Texas SO<sub>2</sub> Trading Program allowances for the specified control periods if the State of Texas submits a SIP revision before the recordation deadline." 40 C.F.R. § 97.921(a). Similarly, the "Administrator may delay recordation of the Texas SO<sub>2</sub> Trading Program allowances for the applicable control periods if the State of Texas submits a SIP revision by May 1 of the year of the applicable recordation deadline under this paragraph." *Id.* § 97.921(b).

These provisions in 40 C.F.R. § 97.921(a) and (b) are arbitrary and capricious and otherwise unlawful for at least three reasons. First, by permitting the mere submittal of a SIP to suspend the central component of the Trading Rule, these provisions flout the Act's rulemaking requirements. The Clean Air Act prescribes the process for review of a SIP or SIP revision. If a state submits a SIP, EPA must determine within six months whether the submission is complete.

---

<sup>130</sup> Note, here we are not contemplating moving these 62,061 tons into the Supplemental Allowance Pool as Section 97.911(a)(2) now provides. Rather, these allowances should never have been in the allowance pool in the first place.



42 U.S.C. § 7410(k)(1)(A). If the plan is complete, EPA then has one year to determine whether the plan comports with legal requirements and to either approve or disapprove the plan, in whole or in part. *Id.* EPA may not approve a plan “if the revision would interfere with any . . . applicable requirement” of the Clean Air Act. *Id.* § 7410(l). The promulgation of a SIP, as well as EPA’s action on a SIP, are subject to the Act’s rulemaking requirements, *id.* § 7607(d)(1)(B), including notice and an opportunity for public comment, *id.* § 7607(d)(2)-(6). The process is no different if a SIP has been proposed to replace a previously enacted FIP; under section 7407(d)(1)(B), EPA must go through the Clean Air Act’s rulemaking procedures. No provision of the Act allows the mere submission of a SIP to suspend operation of a FIP. Yet, that is precisely what the Trading Rule allows, in violation of the Clean Air Act.

Second, assuming, *arguendo*, that the trading program were a permissible BART alternative—which it is not, as described above—suspension of the program would mean that there is no functioning BART alternative in place. This would be a clear violation of 42 U.S.C. § 7491(b)(2)(A) and 40 C.F.R. § 51.308(e), both of which require a plan implementing SO<sub>2</sub> BART.<sup>131</sup>

Third, the Trading Rule does not include any provision that would resume the intrastate trading program if the State’s proposed SIP were found to be deficient. In other words, these provisions would allow the trading program to be suspended indefinitely simply because the State submitted a proposed SIP. This violates the Clean Air Act and is arbitrary and capricious.

**B. It is Arbitrary and Capricious for the Trading Rule to Allocate Allowances to Units that Have Already Retired or Will Retire by the Date the Final Rule is Issued.**

It is arbitrary and capricious for the Trading Rule to allocate allowances to units that have already retired or intend to retire before the trading program goes into effect in 2019. *See* 40 C.F.R. § 97.911(a)(1). Specifically, the Trading Rule allocates allowances to Big Brown, Monticello, Sandow, and Welsh Unit 2, all of which have already retired, as well as JT Deely, which has announced that it will retire by the end of 2018.<sup>132</sup> EPA notes that the allowances allocated to these units amount to 74,313 tons per year, 82 Fed. Reg. at 43,603, a significant percentage of the total annual allowances.

---

<sup>131</sup> The Act makes clear that EPA’s FIP responsibilities, *see* 42 U.S.C. § 7410(c)(1)(A)-(B), are not discharged simply because a state submitted a SIP. As the Tenth Circuit explained:

Once the EPA issued findings that Oklahoma failed to submit the required SIP under the Regional Haze Rule, the EPA had an obligation to promulgate a FIP. The statute itself makes clear that the mere *filing* of a SIP by Oklahoma does not relieve the EPA of its duty. And the petitioners do not point to any language that requires the EPA to delay its promulgation of a FIP until it rules on a proposed SIP. As the EPA points out, such a rule would essentially nullify any time limits the EPA placed on states. States could forestall the promulgation of a FIP by submitting one inadequate SIP after another.

*Oklahoma*, 723 F.3d at 1223 (emphasis in the original).

<sup>132</sup> Grid operator notified: Deely coal plant operations to be indefinitely suspended in 2018 (Oct. 28, 2013), available at <https://newsroom.cpsenergy.com/coal-plant-operations-suspended-2018/>, attached as Ex. 13.

EPA cannot finalize a FIP that would allocate emission credits to sources that no longer have a valid Title V permit to operate, because the only lawful option for using such allowances would be to transfer them to existing units with valid Title V permits, and those existing units would then be authorized to increase their emissions. This would exacerbate the critical flaw in the Trading Rule, that the total allowance allocations exceed actual emissions from covered sources in 2015, 2016, and 2017, and therefore the Trading Rule will fail to make progress toward eliminating haze pollution, as required by the statute, 42 U.S.C. § 7491(b)(2). Accordingly, EPA must eliminate all of these allowances for units that will have retired by January 1, 2019, such that none of these units receives allowances under the Trading Rule.

Moreover, EPA has provided no rationale for allocating allowances to units that have already retired or will have retired by the date the final rule is issued and/or goes into effect. And EPA has not even considered how making 74,313 tons of allowances per year from retired units available to other sources will impact allowance prices. Given that the allowances from already-retired units is such a large percentage of the total allowances available, allowances will likely be so abundant and cheap that even those units emitting more than their allotted allowances will have little to no incentive to reduce emissions instead of purchasing allowances to continue polluting at the same level.

In addition, continuing to provide allowances to units that have already retired violates the anti-backsliding provision of the Clean Air Act, 42 U.S.C. § 7410(l), by in effect transferring additional allowances from retired units to other, existing units, thereby enabling non-retired units to increase their emissions over what they would otherwise be allowed. As a result, the Trading Rule EPA is proposing to “affirm” would, if affirmed, then authorize even higher emissions on a per-unit basis than the 2017 Trading Rule authorized. At the time the Trading Rule was issued in October 2017, Big Brown, Monticello, and Sandow had not retired, and were allocated allowances. Despite the fact that those units have now retired, EPA is not proposing to change the allowance allocations for those units. In effect, the number of operating sources has declined, but the total emission allowances are the same. The 30 units that are still operating and are covered by the Trading Rule will have an additional 74,313 tons of allowances available to receive or purchase from the retired units. The owners of already-retired units would either use these allowances for other, active units they own, or sell the allowances—there is no rational economic reason they would simply hold allowances for units that have retired and do not need allowances.

If the remaining 30 active units split the 74,313 tons of allowances from already-retired units evenly, each of the 30 units could increase emissions by 2,477 tons relative to what they could emit under the October 2017 Rule. Put differently, by making more allowances available on a per-active-unit basis than the 2017 Trading Rule, this proposed Trading Rule authorizes each active unit to emit more than the October 2017 Rule did, as shown in the following table:

	Final 2017 Trading Rule	Proposed 2018 Trading Rule
Active Units Allocated Allowances	38 units	30 units
Total Allowances Available	293,104 tons	293,104 tons
Average Allowances Per Active Unit	7,713 tons	9,770 tons

Finally, EPA also cannot take credit for any of the emission reductions associated the recent retirements of Texas power plants. As noted, under the Regional Haze Rule, EPA must demonstrate that the emission reductions resulting from any emissions trading program or other alternative measure will be “surplus to those reductions resulting from measures adopted to meet requirements of the Clean Air Act.” 40 C.F.R. § 51.308(e)(2)(iv). Because Big Brown, Monticello, Sandow, and Welsh 2 have already retired and abandoned their operating permits, EPA cannot lawfully claim that the Trading Rule itself results in any emission reductions from those plants.<sup>133</sup> In other words, those emission reductions cannot be credited towards determining the overall emissions impact of the Trading Rule.

### **C. The Trading Rule’s Treatment of Units that Retire in the Future is Arbitrary and Capricious.**

The Trading Rule provides that if, after 2018, a unit does not operate for two consecutive years, the unit will continue to receive allowances until the fifth year after the first year it did not operate, and then such allowances will be placed in the Supplemental Allowance Pool. 40 C.F.R. § 97.911(a)(2). Both the provision that a retired unit will continue receiving allowances for five years after retirement, and the provision placing allowances from units that have retired into the Supplemental Allowance Pool, are arbitrary and capricious.

As an initial matter, if a source has relinquished its operating permit—or if the permitting agency has terminated the permit—the source cannot emit any pollutants, and therefore the source would have no emissions for which it would need allowances. *See* 42 U.S.C. § 7661a(a). Thus, as mentioned above, because a retired source has no emissions for which it needs allowances, a retired source would likely sell or transfer allowances to existing sources. As a result, non-retired sources could increase emissions and have enough allowances to cover such increased emissions. At the same time, because allowances will be so plentiful and therefore so cheap, allocating allowances to units after they retire will not incentive units to retire. Thus, granting allowances to units that retire in the future will have the net impact of increasing SO<sub>2</sub>

---

<sup>133</sup> Nor would there be any merit to an argument that the Trading Rule caused or contributed to the retirement of these units. SWEPco retired Welsh Unit 2 in April 2016, long before the Trading Rule was finalized. *See* Welsh Power Plant Environmental Retrofit Project, available at <https://www.swepco.com/info/projects/Welsh/>, attached as Ex. 14. And while the other units were retired after the Trading Rule was finalized, Luminant made the decision to retire its units before the Trading Rule was issued. Specifically, Luminant’s public announcement of its intention to retire Monticello was made on October 6, 2017, and the announcement of the retirement of Sandow and Big Brown was made on October 13, 2017—before the Trading Rule was issued on October 17, 2017. *See* Luminant Announces Decision to Retire Monticello Power Plant, available at <https://www.luminant.com/luminant-announces-decision-retire-monticello-power-plant/> (attached as Ex. 15); Luminant to Close to Texas Power Plants, available at <https://www.luminant.com/luminant-close-two-texas-power-plants/> (attached as Ex. 16).

emissions and therefore increasing visibility impairment. This is arbitrary and capricious, given that the statutory mandate is to make reasonable progress toward eliminating visibility impairment, 42 U.S.C. § 7491(a)(1).

Moreover, EPA has failed to set forth any rational basis for continuing to provide allowances to a unit that retires under the trading program for five years after such retirement. In particular, EPA has provided no explanation for how five years of continued allowances could possibly help ensure reasonable progress toward eliminating haze, 42 U.S.C. § 7491(b)(2). This is a glaring omission given that this provision would certainly appear to frustrate progress by ensuring that the emission reductions from a retirement could be cancelled out by another, existing source that would receive or purchase the five years of post-retirement allowances.

EPA has similarly failed to consider how the treatment of future retirements would impact allowance prices. The practical impact of 40 C.F.R. § 97.911(a)(2) is that as units retire and the number of operating units decreases, the number of available allowances could remain constant. In other words, as demand drops, supply stays the same. Fundamental economic principles dictate that the price of allowances will therefore decline over time, and thus units that continue to operate will have even less of an economic incentive to install pollution controls or otherwise reduce their emissions, rather than simply holding or purchasing allowances. EPA's failure to consider this fundamental impact of the Trading Rule's continued allocation of allowances five years after a unit retirement is arbitrary and capricious. Nor has EPA considered the option of eliminating the allowances from a retired unit in the years after the unit retires.

#### **D. The Supplemental Allowance Pool's Treatment of Coletto Creek is Unlawful and Arbitrary and Capricious.**

The Supplemental Allowance Pool, 40 C.F.R. § 97.912, is unlawful, arbitrary, and capricious because, far from reducing SO<sub>2</sub> emissions to improve visibility at the Class I Areas impacted by these Texas generating units, this provision would allow SO<sub>2</sub> emissions to increase over time. Section 97.912 regulates how compliance assistance would be provided to any unit that finds itself in the position of not holding enough allowances to cover its year-end SO<sub>2</sub> emissions. This provision's treatment of Coletto Creek is unreasonably permissive because § 97.912(a)(3)(i) allows Coletto Creek to increase its emissions to an unspecified level without incurring any penalty. 82 Fed. Reg. at 48,370. Section 97.912(a)(3)(i) states:

For Coletto Creek (ORIS 6178), if the source is identified under paragraph (a)(1) of this section, the Administrator will allocate and record in the source's compliance account an amount of allowances from the Supplemental Allowance Pool equal to the lesser of the amount calculated for the source under paragraph (a)(2) of this section or the total number of allowances in the Supplemental Allowance Pool available for allocation under paragraph (b) of this section.

Paragraph (a)(2) simply determines how much Coletto Creek's SO<sub>2</sub> emissions exceed its allowances. Thus, under § 97.912(a)(3)(i), if Coletto Creek requires more allowances to be in compliance, those allowances will be provided up to the amount held in the supplemental allowance pool. Because that pool's starting balance is 10,000 tons, and given that Coletto Creek's 2016 SO<sub>2</sub> emissions totaled 8,231 tons, 71 § 97.912(a)(3)(i) would allow this unit to

more than double its 2016 SO<sub>2</sub> emissions. And nothing in the Trading Rule would prevent Coletto Creek from increasing its SO<sub>2</sub> emissions to even higher levels, if and when the supplemental allowance pool has accumulated allowances in excess of 10,000 tons.

While this provision governing Coletto Creek was arbitrary and capricious when it was announced in 2017, it is even less defensible now that Dynegy, the owner of Coletto Creek, has merged with Vistra. EPA's original rationale for guaranteeing the maximum allocation for Coletto Creek from the Supplemental Allowance Pool was that Coletto Creek was the only covered source owned by Dynegy, whereas other sources' owners have multiple covered plants; according to EPA, "[i]t was conceivable that insufficient incentives would exist to compel Dynegy's competitors in the electric market to make their additional allowances available for purchase by Dynegy." 83 Fed. Reg. at 43,602. Now that Vistra and Dynegy have merged, this is no longer true, because the combined Dynegy-Vistra company owns several units other than Coletto Creek covered by the Trading Rule. Given that the factual basis for this provision concerning Coletto Creek is no longer true, EPA must eliminate 40 C.F.R. § 97.912(a)(3)(i).

Even apart from its treatment of Coletto Creek, § 97.912 is arbitrary and capricious because it facilitates increases in SO<sub>2</sub> emissions. Once Coletto Creek has availed itself of any needed allowances, section 97.912(a)(3)(ii) provides that any other power plants that also need compliance assistance can divide up the remaining allowances. If the needed allowances exceed what remains in the supplemental allowance pool, then the remaining allowances are distributed proportionally. These provisions underscore that, far from reducing SO<sub>2</sub> emissions, the Trading Rule is designed to allow current SO<sub>2</sub> emissions to increase.

## **VI. THE TRADING RULE DOES NOT SATISFY TEXAS' CLEAN AIR ACT SECTION 110(A)(2)(D)(I)(II) VISIBILITY TRANSPORT PLAN REQUIREMENTS.**

EPA is proposing "to affirm the finding that the BART alternatives in the October 2017 rulemaking result in emission reductions adequate to satisfy the requirements of Clean Air Act section 110(a)(2)(D)(i)(II) with respect to visibility for six NAAQS issued between 1997 and 2010." 83 Fed. Reg. 43,593. EPA's rationale for affirming this finding is deficient; the Trading Rule does not satisfy Texas's visibility transport plan requirements.

In the January 2017 proposed rule, EPA found that its source-specific BART proposal, together with Texas' participation in CSAPR for NO<sub>x</sub>, would satisfy the visibility transport requirements. *See* 82 Fed. Reg. at 917. EPA's rationale was that this combination would produce greater emission reductions and visibility benefits than assumed under CAIR or CSAPR alone, and that the source-specific BART requirements would cut the most significant emissions from large sources. *Id.* ("We are proposing this action based on the reasoning that our BART FIP will achieve more emission reductions than projected under CAIR or CSAPR and the reductions are occurring at sources that have particularly large impacts on Class I areas outside of Texas.").

In the Trading Rule, however, EPA adopted an entirely different position that it now seeks to affirm. First, the agency relied on its newly invented intrastate trading program, not source-specific BART, to meet the visibility transport obligation. Second, EPA based that

reliance on an entirely new rationale, namely, that the SO<sub>2</sub> reductions it predicted from the trading program would be consistent with emissions reductions modeled by CENRAP under a regional haze planning organization process. *Id.* at 48,332.

EPA's reliance on the Trading Rule to satisfy section 110(a)(2)(D)(i)(II) is arbitrary and capricious. EPA claims that the Trading Rule reduces emissions as much as CAIR would have, and that the central states agreed that their respective interstate visibility transport obligations would be met through implementation of CAIR. *See* 82 Fed. Reg. at 48,332. But EPA cannot use CAIR—which has been invalidated by the D.C. Circuit and replaced by EPA—as the benchmark for whether the Trading Rule meets the interstate visibility transport requirements.

And there is no rational basis for EPA's new rationale of relying on the emission levels assumed in CENRAP modeling as a basis for finding that Texas' emissions will not interfere with other states' visibility plans. That CENRAP used emission assumptions in its modeling does not show that those assumptions were in fact sufficient to assure non-interference by Texas' emissions with measures required to protect visibility in other states. Moreover, the states whose visibility is impacted by Texas include states that were not members of CENRAP, such as New Mexico and Colorado,<sup>134</sup> and therefore the CENRAP process could not have determined what emissions limits were necessary to satisfy Texas' obligations regarding New Mexico and Colorado.

In addition, for all of the reasons explained elsewhere in this petition, the Trading Rule suffers from multiple procedural and substantive flaws. Given that the Trading Rule is unlawful, it cannot satisfy Texas' interstate visibility transport obligations.

## **VII. EPA'S FAILURE TO CONDUCT A SOURCE-SPECIFIC PM BART ANALYSIS IS ARBITRARY AND CAPRICIOUS.**

In its January 2017 BART FIP proposal, EPA proposed to disapprove Texas's technical evaluation and determination in the 2009 Regional Haze SIP that particulate matter ("PM") BART emission limits are not required for any of Texas's EGUs. Instead, EPA proposed source-specific PM BART emission limits for Texas EGUs coal units equal to the Mercury and Air Toxics ("MATS") limit of 0.030 lb/MMBtu and work practice standards. 82 Fed. Reg. at 947. Although those proposed PM BART emission limits were flawed in several ways,<sup>135</sup> EPA

---

<sup>134</sup> *See, e.g.*, BART Modeling TSD at App. E, 85-102.

<sup>135</sup> As noted in our May 5, 2017 comments and in the accompanying expert report of Vicki Stamper, which we attach as Ex. 17 ("May 2017 Stamper Report") and incorporate by reference, EPA's source-specific PM BART determinations were arbitrary and capricious for at least four reasons. First, EPA unlawfully assumed that Maximum Achievable Control Technology ("MACT") standards under the MATS Rule—which were calculated based on the average of the emissions rates of the best-performing 12% of plants across the country—could supplant the agency's statutory obligation to determine PM BART on a source-by-source basis, evaluating the five statutory BART factors. 82 Fed. Reg. at 936; *compare* 42 U.S.C. § 7491(g)(2) *with* 42 U.S.C. § 7412(d)(3) (providing different statutory factors for MACT and BART determinations). Had Congress wanted states and EPA to make BART determinations using the methodology for calculating MACT standards, Congress would have said so. Second, and relatedly, EPA unlawfully relied on a "streamlined" approach to PM BART, 82 Fed. Reg. at 935, instead of determining BART, "*on a case-by-case basis*" as required by the agency's regional haze regulations. 40 C.F.R. § 51.301 (emphasis added). Third, EPA arbitrarily failed to gather any data on the control efficiency of existing PM controls, rendering it impossible for EPA to evaluate the best emission limit for each unit. *See, e.g.*, 82 Fed. Reg. at

correctly recognized that Texas must conduct source-specific PM BART analyses because the state could no longer rely on SO<sub>2</sub> and NO<sub>x</sub> emission reductions from the now-defunct Clean Air Interstate Rule. Additionally, the 2009 Texas SIP neglected to identify several BART-eligible sources, which also required the partial disapproval of the state's SIP, and a corresponding federal plan to correct the deficiencies in Texas's PM BART analysis. 82 Fed. Reg. at 918 n.38.

EPA now proposes to affirm its approval of Texas' finding that no PM BART controls are necessary for EGUs based on a "pollutant-specific screening analysis for PM" that purportedly demonstrates that Texas EGUs are "not subject to BART for PM." 83 Fed. Reg. at 43,593. EPA asserts that Texas' pollutant-specific screening analysis is consistent with a 2006 guidance document in which EPA suggested that a "pollutant-specific screening can be appropriate where a state is relying on a BART alternative to address both NO<sub>x</sub> and SO<sub>2</sub> BART." 83 Fed. Reg. at 43,590.

EPA's proposal to affirm its approval of the Texas PM BART analysis is arbitrary and capricious, for several reasons. First, EPA's approval of Texas' screening approach is contrary to the plain language of the Clean Air Act. Second, EPA's screening approach is directly contrary to the agency's regional haze regulations and mandatory BART guidelines. Third, EPA's approval of a pollutant-specific screening approach arbitrarily departs from the agency's past practice. Fourth, even if EPA's screening approach did not impermissibly conflict with the Clean Air Act, the Regional Haze Rule, and the agency's prior practice, the agency has failed to provide a rational explanation for applying a pollutant-specific screening analysis here. Finally, Texas' screening analysis is based on the unsupported selection of 0.5 deciviews as the threshold for contribution to visibility impairment.

**A. EPA's Approval of Texas' Screening Approach Cannot be Reconciled with the Plain Language of the Clean Air Act.**

EPA's proposal to affirm its prior approval of Texas' screening approach is contrary to the plain language of the Clean Air Act because it effectively exempts sources from installing PM BART controls without going through the statutory exemption process Congress prescribed. The visibility protection provisions of the Clean Air Act include a "requirement" that certain sources "install, and operate" BART controls if they emit any air pollutant that may reasonably be anticipated to cause or contribute to visibility impairment in any Class I area. 42 U.S.C. § 7491(b)(2)(A). Congress provided a specific mechanism by which sources could be exempted from the BART requirements: only if the Administrator determines that "a *source* does not or will not, by itself or in combination with other sources, emit any air pollutant which may reasonably be anticipated to cause or contribute to a significant impairment of visibility" in any Class I area. *Id.* § 7491(c)(1) (emphasis added). Any exemption "shall not be applicable to any fossil-fuel fired powerplant with a total design capacity of 750 megawatts or more" unless "such plant demonstrates" that it is located at such a distance from any Class I area that it does not and will not "emit any air pollutant which may reasonably be anticipated to cause or contribute to a

---

936 ("We do not have any information on the control level efficiency of any of the ESPs for the units in question."). Fourth, EPA arbitrarily failed to consider improvements to existing controls in use at each unit, as EPA did in its analysis of SO<sub>2</sub> BART for the same units.

significant impairment of visibility.” *Id.* § 7491(c)(2). Moreover, the appropriate federal land managers must concur with any proposed exemption. *Id.* § 7491(c)(3).

EPA has not demonstrated that any of the BART-eligible Texas EGUs meet the statutory requirements for an exemption, nor has EPA obtained the concurrence of federal land managers. Although Texas’ screening methodology purports to demonstrate that, viewed in isolation, EGU emissions of particulate matter do not exceed the state’s 0.5 deciview contribution threshold,<sup>136</sup> the plain text of the Clean Air Act allows for an exemption only when the “source” does “not emit *any* pollutant” which may cause or contribute to visibility impairment. As discussed above, and as the record makes clear, numerous Texas EGUs emit pollutants—including SO<sub>2</sub>, NO<sub>x</sub>, and particulate matter—which by themselves and in combination contribute to visibility impairment.<sup>137</sup> And EPA has provided no statutory support for its narrow, pollutant-specific exemption of such sources from a BART analysis. Therefore, under the plain language of the Clean Air Act, EPA must require source-specific BART for each eligible EGU.

## **B. The Screening Approach Conflicts with the Regional Haze Rule and BART Guidelines.**

EPA’s screening approach is also directly contrary to the agency’s regional haze regulations and mandatory BART guidelines, which do not provide for any exemptions from a five-factor BART analysis for specific pollutant unless the source meets specific criteria. Under EPA’s BART Guidelines and the definition of BART, once a source has been determined to be subject to BART, a five-factor BART analysis must be conducted for each pollutant pursuant to 40 C.F.R. Part 51, § 51.301 and Appendix Y, section IV.A. EPA’s regulations further require that BART emission limits “must be established, *on a case-by-case basis* taking into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.” 40 C.F.R. Part 51, App. Y, section IV.A.

Texas and EPA indisputably failed to conduct any source-by-source evaluation for PM BART. Instead, Texas relied on a “screening” approach, which EPA asserts is authorized by a 2006 intra-agency memorandum regarding the implementation of the Clean Air Interstate Rule, which no longer exists. 83 Fed. Reg. at 43,591. But again, EPA’s regulations provide that for BART, “[t]he emission limitation must be established, *on a case-by-case basis* . . . .” 40 C.F.R. § 51.301 (emphasis added). Moreover, the regulation provides a narrow de minimis exemption for only those sources that emit less than 15 tons per year of particulate matter. *Id.* § 308(e)(1)(ii)(C). If EPA had wanted to provide a different pollutant-specific exemption, it could and should have done so in the Regional Haze Rule itself, rather than through a subsequent

---

<sup>136</sup> As discussed below, Texas’ screening of BART-eligible sources is also impermissibly based on the unsupported assumption that 0.5 deciviews is the threshold for contribution to visibility impairment.

<sup>137</sup> As the agency notes, “[d]ue to the complexity and nonlinear nature of atmospheric chemistry and chemical transformation among pollutants, EPA has not recommended performing modeling on a pollutant-specific basis to determine whether a source is subject to BART,” except in unique circumstances not applicable here, as discussed below. 83 Fed. Reg. at 43,590 n.25.



interpretation that was not subject to notice and comment and lacks the force of law.

Moreover, neither EPA nor Texas attempted to demonstrate that this *de minimis* exemption applies to any of Texas' EGUs. And even if EPA's intra-agency memorandum provided a persuasive factual basis for Texas' screening analysis (it does not), EPA cannot ignore its binding regulations. Where, as here, an agency interpretation conflicts with the plain language of its regulations, the regulations must take precedence. *See Christopher v. SmithKline Beecham Corp.*, 567 U.S. 142, 155 (2012) (holding that an agency's interpretation of its own regulations should be rejected when the interpretation is plainly erroneous or inconsistent with the regulation).

### C. EPA's Pollutant-Specific Approach Departs from Past Practice.

EPA's approval of a pollutant-specific screening approach not only conflicts with the agency's regulations and the Clean Air Act itself, but it arbitrarily departs from the agency's past practice. Indeed, in reviewing PM BART decisions in other state regional haze plans, EPA has rejected similar pollutant-specific approaches to BART determinations, stating that:

under the [Regional Haze Rule], the determination of whether a source causes or contributes to visibility impairment is *not* made on a pollutant-by-pollutant basis. Rather, as explained in the BART Guidelines, states must 'look at SO<sub>2</sub>, NO<sub>x</sub>, and direct PM emissions in determining whether sources cause or contribute to visibility impairment . . . .'

Once a facility is determined to be subject to BART, the [Regional Haze Rule] allows for the exemption of specific pollutants from a BART analysis *only if they are below specified de minimis levels*. Although a small pollutant-specific baseline visibility impact may be informative in determining what control option may be BART, *a BART analysis is still required* for any pollutant that exceeds the *de minimis* threshold at an otherwise subject-to-BART source.

78 Fed. Reg. 46,142, 46,155 (July 30, 2013) (emphasis added) (citing 40 C.F.R. § 51.308(e)(1)(ii)(C) and partially disapproving Arizona regional haze plan). The Ninth Circuit subsequently upheld that rejection of a pollutant-specific screening approach. *Phoenix Cement Co. v. EPA*, 647 Fed. App'x. 702, 706 (9th Cir. 2016) (holding the "Regional Haze Rule does not expressly provide for any exemption of specific pollutants from BART determinations except through the 40-tons-per-year *de minimis* exception."). Without acknowledging its departure from that approach and without providing a reasoned and technically supportable explanation supported by the record, EPA now proposes to approve Texas's pollutant-specific screening analysis to avoid conducting a PM BART analysis. That is an impermissible result *Encino Motorcars, LLC v. Navarro*, — U.S. —, 136 S.Ct. 2117, 2125–26 (2016) (when agency changes its position, it must at least "display awareness that it is changing position" and "show that there are good reasons for the new policy.").

As required by the Regional Haze Rule and the BART Guidelines, EPA must conduct a BART screening analysis that evaluates the impacts of all pollutants together, not just PM. EPA must then conduct a source-specific, five-factor analysis of PM BART for each EGU subject to

BART. The agency's failure to do so renders invalid the Trading Rule's proposed exemption of Texas sources from PM BART.

**D. EPA has Failed to Demonstrate that the Screening Approach is Appropriate Here.**

Even if EPA's screening approach did not impermissibly conflict with the Clean Air Act, the Regional Haze Rule, and the agency's prior practice, the agency has failed to provide a rational explanation for its approach. Although EPA has cited a 2006 intra-agency memorandum as support for its pollutant-specific screening approach, EPA has failed to "offer[] a reasoned explanation for why it chose that interpretation" and applied it to these circumstances. *Village of Barrington, Ill. V. Surface Transportation Board*, 636 F.3d 650, 660 (D.C. Cir. 2011). Moreover, because the agency's 2006 intra-office memorandum was never subject to notice and comment and is not binding in any event, the agency's informal memorandum is entitled to deference only to the extent it has the power to persuade. *Skidmore v. Swift & Co.*, 323 U.S. 134, 140 (1944); *see also Christensen v. Harris County*, 529 U.S. 576, 587 (2000) (interpretations which lack force of law do not warrant *Chevron* deference); *accord U.S. v. Mead Corp.*, 533 U.S. 218, 226-27 (2001).<sup>138</sup>

EPA has failed to explain how its 2006 memorandum allowing pollutant-specific screening is applicable here, for several reasons. As an initial matter, EPA's 2006 memorandum contains virtually no analysis or rationale, and therefore lacks the power to persuade. *Skidmore*, 323 U.S. at 140. Indeed, the entirety of EPA's justification for using a pollutant-specific screening approach is contained in a single paragraph that does not cite or incorporate any technical justification whatsoever. Moreover, the memorandum contemplates the use of a pollutant-specific screening analysis in situations where a state is subject to *both* SO<sub>2</sub> and NO<sub>x</sub> emission reductions under the Clean Air Interstate Rule. EPA cannot lawfully or rationally rely on a memo interpreting and applying a rule, CAIR, that no longer exists. To the extent the 2006 memo could theoretically be applied to other BART alternatives, the Texas trading scheme is not a lawful BART alternative, for all the reasons explained above.

---

<sup>138</sup> As discussed, EPA's 2006 intra-office memorandum suggesting that it need not conduct a source-specific PM BART analysis is inconsistent with plain language of the Clean Air Act and Regional Haze Rule, and therefore the agency's interpretation of its regulations is not entitled to deference. *Bowles v. Seminole Rock & Sand Co.*, 325 U.S. 410, 414 (1945) (agency interpretation of its regulation is not controlling where "it is plainly erroneous or inconsistent with the regulation"); *see also Auer v. Robbins*, 519 U.S. 452, 461 (1997) (same). In any event, the notion that EPA is entitled to deference in interpreting its own regulations is on shaky ground. Indeed, the concept of *Auer* deference violates the separation of powers principle, because it permits the same branch of government to both enact a rule and to interpret it. *Auer* deprives the judiciary of the power to "say what the law is," as required under Article III. Finally, courts have repeatedly criticized agency use of guidance documents in the form of interpretive rules and policy statements to reinterpret regulations, recognizing the potential problem that "[l]aw is made, without notice and comment, without public participation, and without publication in the Federal Register or the Code of Federal Regulations." *Decker v. Northwest Envtl. Def. Ctr.*, 133 S.Ct. 1326, 1341(2013); *Perez v. Mortgage Bankers Ass'n*, 135 S. Ct. 1199, 1213-14 (Mar. 9, 2015); *see also Appalachian Power Co. v. EPA*, 208 F.3d 1015, 1020 (D.C. Cir. 2000) (criticizing agency use of guidance documents in the form of interpretive rules and policy statements, recognizing the potential problem that "[l]aw is made, without notice and comment, without public participation, and without publication in the Federal Register or the Code of Federal Regulations.")

Finally, EPA's use of a screening approach is arbitrary because unlike the Clean Air Interstate Rule, which provides the basis for EPA's 2006 memorandum, Texas is *not* subject to annual NO<sub>x</sub> emission limits. Instead, the NO<sub>x</sub> emissions reductions in Texas under CSAPR are limited to five months of the year—the ozone season. 83 Fed. Reg. at 43,590. As a result, CSAPR does nothing to address the visibility impacts due to *wintertime* nitrate and particulate matter emissions. This undercuts the factual basis for using a pollutant-specific screening analysis for PM because, contrary to the agency's assumptions and "[d]ue to the complexity and nonlinear nature of atmospheric chemistry and chemical transformation among pollutants," there is no annual NO<sub>x</sub> BART limit and the modeling cannot accurately predict whether PM alone (or in combination with NO<sub>x</sub> during the wintertime) will impair visibility. 83 Fed. Reg. at 43,590 n.25. Moreover, even within the five-month ozone season, CSAPR allows for temporal NO<sub>x</sub> emissions variability, and power plants may exercise options that would lead to little or no NO<sub>x</sub> emission reductions. These same concerns apply to SO<sub>2</sub> emissions under the Texas trading scheme. Thus, without knowing which EGUs will reduce NO<sub>x</sub> and SO<sub>2</sub> pollutants by what amounts under CSAPR or the Texas trading scheme, or when they will do so, and because the CSAPR NO<sub>x</sub> emissions reductions are applicable for less than half the year, EPA cannot simply not accurately predict PM-only visibility impacts under CSAPR and the Texas Trading scheme.<sup>139</sup>

**E. Texas' Determination is Based in Part on the Unsupported Selection of 0.5 Deciviews as the Threshold for Contribution to Visibility Impairment.**

In its SIP, Texas identified 126 sources as BART-eligible or potentially BART eligible. *See* Texas SIP at 9-2 to 9-4; 79 Fed. Reg. at 74,845-47.<sup>140</sup> Yet Texas ultimately concluded that no BART eligible source is subject to PM BART. Texas SIP at 9-10.66. This is because Texas adopted 0.5 deciviews as the screening threshold for "contribution" to visibility impairment. And in its 2016 BART FIP proposal, EPA proposed to agree with Texas's use of a 0.5 deciview "contribution" threshold for evaluating whether a unit was subject to BART. 82 Fed. Reg. at 919. But neither Texas nor EPA provided any technical or rational justification for using that 0.5 deciview threshold. Indeed, there is no documentation in the record as to how or why Texas or EPA selected this threshold, and there is no legal support for such threshold.

EPA's BART Guidelines do not authorize states or EPA automatically to use a 0.5 deciview contribution threshold. Instead, the BART Guidelines state only that "any threshold that you use for determining whether a source 'contributes' to visibility impairment should not be higher than 0.5 deciviews." 40 C.F.R. pt. 51, App. Y § III(A)(1). In the next sentence, the Guidelines instruct each state that it "should consider the number of emissions sources affecting the Class I areas at issue and the magnitude of the individual sources' impacts." *Id.* The

---

<sup>139</sup> As noted above and in our May 5, 2017 comments, EPA's reliance on the MATS Rule as source-specific PM BART was arbitrary and capricious for several reasons. But even if EPA's earlier BART determinations were valid, the agency cannot rely on any purported PM or acid gas emission reductions required by that rule to screen out sources for further source-specific BART analysis in light of EPA stated intention to revisit and reduce the stringency of the MATS Rule. *See* [https://www.washingtonpost.com/energy-environment/2018/10/01/rollback-mercury-rule-trump-could-revamp-how-government-values-human-health/?utm\\_term=.ee47c0527fad](https://www.washingtonpost.com/energy-environment/2018/10/01/rollback-mercury-rule-trump-could-revamp-how-government-values-human-health/?utm_term=.ee47c0527fad).

<sup>140</sup> In its original BART FIP proposal, EPA concluded that at least 72 Texas EGUs were BART eligible. BART FIP TSD at 21-24.

Guidelines further provide that “a larger number of sources causing impacts in a Class I area may warrant a lower contribution threshold.” *Id.*

Here, there is no evidence in the record that Texas or EPA ever considered any visibility impairment threshold other than 0.5 deciviews. As Texas’ and EPA’s list of eligible EGUs indicate, a large number of sources impact the Class I areas in Texas and in neighboring states. Indeed, the subset of sources that screened out of BART based on individual modeling have a combined, baseline impact of nearly 10 deciviews.<sup>141</sup> EPA’s own modeling indicated that Texas EGUs modeled impacts at Class I areas up to 10.498 deciviews. 82 Fed. Reg. at 921. And as EPA noted in its previous reasonable progress rulemaking, the visibility impairment caused by Texas EGUs at Oklahoma Class I areas is far greater than the visibility impacts of Oklahoma’s own sources. 79 Fed. Reg. at 74,866-67. Thus, the situation in Texas appears to be exactly what EPA had in mind when it noted that a contribution threshold lower than 0.5 deciviews may be appropriate given the number of sources and magnitude of the impact. Had Texas or EPA followed the BART Guidelines, they may well have selected a threshold lower than 0.5 deciviews.

Moreover, the Regional Haze regulations make clear that in determining whether a source contributes to “significant impairment” and is therefore subject to BART, EPA or the state must make a “case-by-case” determination of the “geographic extent, intensity, duration, frequency and time of the visibility impairment” in any Class I area, “and how these factors correlate with (1) times of visitor use of the mandatory Class I Federal area, and (2) the frequency and timing of natural conditions that reduce visibility.” 40 C.F.R. § 51.301.<sup>142</sup> But again, there is no evidence in the record that Texas or EPA ever conducted considered any other visibility impairment threshold, or considered any of these factors in determining whether Texas EGUs significantly impair visibility at any Class I area.

In sum, Texas’ use, and EPA’s proposed approval, of a 0.5 deciview threshold has two fatal flaws: it is not based on the analysis prescribed by the BART Guidelines, and it is not supported by any analysis whatsoever in the record. Therefore, EPA must disapprove Texas’ conclusions that sources are not subject to BART, where Texas screened out sources because of a visibility impact below 0.5 deciviews. EPA must then develop an appropriate contribution threshold and determine which sources have impacts above the contribution threshold EPA develops and are therefore subject to BART.

For all these reasons, EPA should not affirm its approval of Texas’ PM BART analysis. Instead, EPA should conduct a new, five-factor BART analysis for each source of

---

<sup>141</sup> See Reasonable Progress FIP TSD at 74-75 (29 sources that screened out based on CALPUFF modeling had a baseline impact of approximately 8.1 deciviews); *Id.* at 77 (6 sources that screened out based on CAMx modeling had a baseline impact of 1.3 deciviews). For the CALPUFF modeling, we avoided double-counting the 2 results reported for Ash Grove. We acknowledge the differences in the CALPUFF and CAMx models, and further acknowledge that the CALFPUFF modeling was conducted differently for different sources, based on either the CENRAP or refined modeling approaches. Thus, aggregating the impacts reported from the different modeling should be viewed as an approximation; the results would likely be slightly different if all sources had used the same modeling approach.

<sup>142</sup> We believe that the purpose of the Clean Air Act’s visibility provisions is to ensure that all visitors, regardless of the time of year they visit, experience Class I national parks and wilderness areas unimpaired. We note only that EPA has arbitrarily departed from its own regulations in selecting 0.5 deciviews as the subject-to-BART threshold.

PM emissions. Moreover, EPA must base these analyses on actual PM emissions from an appropriate baseline period, rather than on “streamlined” assumptions about what control technologies are capable of achieving, and fully evaluate whether additional or upgraded PM controls are warranted.

### **VIII. EPA CANNOT RELY ON THE BART TRADING SCHEME TO SATISFY THE REGIONAL HAZE RULE’S REASONABLE PROGRESS REQUIREMENTS.**

In its proposal, EPA states that it “is not determining now that this proposal serves to also resolve the EPA’s outstanding obligations with respect to reasonable progress that resulted from the Fifth Circuit’s remand of our reasonable progress FIP.” 83 Fed. Reg. at 43,595 n.63. At the same time, however, EPA suggests that the “Texas trading program is designed to provide the measures that are needed to address interstate visibility transport requirements for several NAAQS and to be part of the long-term strategy needed to meet the reasonable progress requirements of the Regional Haze Rule.” 83 Fed. Reg. at 43,595. EPA also states that “[i]n addition to being a sufficient alternative to BART, the trading program secures reductions consistent with visibility transport requirements and is part of the long-term strategy to meet the reasonable progress requirements of the Regional Haze Rule.” *Id.* at 43,597. To begin, EPA’s statements contradict each other, as EPA says on the one hand that it is not determining whether this plan satisfies the reasonable progress requirements, yet on the other hand claims that this plan is designed to satisfy reasonable progress requirements. EPA cannot have it both ways.

Moreover, to the extent the agency is suggesting that the BART trading proposal might satisfy Texas’ separate reasonable progress obligations, the agency is wrong. Even if the BART Trading scheme was lawful (which it is not), EPA cannot rely on a BART trading alternative to satisfy the Regional Haze Rule’s separate reasonable progress and long-term strategy requirements, for several reasons. First, EPA’s Trading Rule cannot be used as a substitute for EPA’s obligation to consider the four statutory “reasonable progress” factors, 42 U.S.C. § 7491(g)(1), in determining the enforceable emissions limitations “necessary to achieve the reasonable progress goals,” 40 C.F.R. § 51.308(d)(3). Instead, EPA must consider whether additional emission reductions at individual Texas EGUs and other sources—whether BART eligible or not—are necessary to ensure reasonable progress is made toward eliminating haze at affected Class I areas. Second, even with the Trading Rule, EPA must still reevaluate the reasonable progress goals for Class I areas in Texas and Oklahoma as well as the other Class I areas to which Texas emissions contribute to impairment to determine whether additional emission reductions are necessary to ensure a reasonable rate of progress toward the national visibility goal. Third, the record in this and the related reasonable progress rulemaking dockets makes clear that there are, in fact, additional emission reductions from Texas EGUs that are cost effective and reasonable to improve visibility at Texas and Oklahoma Class I areas.<sup>143</sup> Fourth, EPA still has an independent and outstanding obligation to address reasonable progress for both Texas and Oklahoma, and must conduct a separate rulemaking with additional opportunity for comment before purporting to satisfy all reasonable progress obligations. Fifth, no “alternative to reasonable progress” option exists. For these reasons, EPA cannot simply rely on its Trading Rule to satisfy reasonable progress, but must instead consider the four statutory reasonable

---

<sup>143</sup> We attach and incorporate our comments, the technical reasonable progress analysis of Vicki Stamper, and EPA’s Technical Support documents that were filed in EPA Docket No. EPA–R06–OAR–2014–0754.

progress factors and require emissions reductions as may be necessary to ensure reasonable progress toward the natural visibility goal. And based on the agency's final reasonable progress FIP for Texas, an analysis of those four statutory factors makes clear that source-specific emission limits for several of the state's EGUs are cost effective and would significantly improve visibility in affected Class I areas.

**A. EPA Must Consider Whether Additional Emission Reductions Are Required From Texas EGUs—Whether Subject To BART Or Not—To Make Reasonable Progress Toward Natural Visibility.**

EPA's Trading Rule cannot satisfy EPA's obligation to address reasonable progress requirements including consideration of the four statutory "reasonable progress" factors, 42 U.S.C. § 7491(g)(1), in determining the enforceable emissions limitations "necessary to achieve the reasonable progress goals," for at least two reasons. 40 C.F.R. § 51.308(d)(3). First, the Clean Air Act, the Regional Haze Rule, and EPA's practice make clear that in evaluating reasonable progress, EPA must consider whether additional emission reductions are required from Texas EGUs and other sources—whether subject to BART or not—to make reasonable progress toward natural visibility. Under the Clean Air Act and the Regional Haze Rule, EPA must include emission limits and other measures as may be necessary to ensure reasonable progress towards meeting the national goal of eliminating and remedying visibility impairment in Class I areas. 42 U.S.C. § 7491(b)(2); 40 C.F.R. § 51.308(d)(1)(i)(A), (d)(3). "In determining reasonable progress" measures that may be necessary to achieve that goal, 42 U.S.C. § 7491(b)(2), the Act requires that EPA "shall" take into consideration four statutory reasonable progress factors: (1) the cost of compliance, (2) the time necessary for compliance, (3) the nonair environmental quality impacts of compliance, and (4) the remaining useful life of any source subject to the Clean Air Act's visibility provisions. *Id.* § 7491(g)(1). EPA "commonly refer[s] to the evaluation of these four statutory factors as the "four-factor analysis" or "reasonable progress analysis." 81 Fed. Reg. 66,332, 66,360 (Sept. 27, 2016).

Read together, sections 7491(b)(2) and (g)(1) make clear that, "in evaluating reasonable progress," EPA must consider emission limits necessary to make reasonable progress from any individual air pollution "*sources*" that contribute to impairment in Class I areas, regardless of whether those sources are BART eligible. *Id.*; *see also* 40 C.F.R. § 51.308(d)(3)(iv) (emphasis added).<sup>144</sup> Indeed, Congress's careful reference to consideration of "emission limits"<sup>145</sup> at all existing "sources" makes clear that EPA has an obligation to consider addition pollution reductions at all *individual sources, whether eligible for BART or not*.<sup>146</sup>

---

<sup>144</sup> A source is any building, structure, facility, or installation which emits or may emit any air pollutant. 42 U.S.C. § 7411(a)(1).

<sup>145</sup> An "emission limitation" means "a requirement established by the State or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirement relating to the operation or maintenance of a *source* to assure continuous emission reduction, and any design, equipment, work practice or operational standard promulgated under this chapter." 42 U.S.C. § 7602.

<sup>146</sup> *Corley v. United States*, 556 U.S. 303, 314 (2009) (statutes must "be construed so that effect is given to all its provisions, so that no part will be inoperative or superfluous, void or insignificant").

EPA's long-standing practice and interpretations also make clear that EPA must conduct a four-factor analysis of whether pollution controls are needed at individual sources—whether subject to BART or not—to make reasonable progress. *See* 82 Fed. Reg. at 3080, 3090-91; 79 Fed. Reg. 74at 74,828-30. For example, in the haze rule for Arkansas, EPA stated that:

[t]he statute and regulations are both clear that the states or EPA in a FIP have the authority and obligation to evaluate the four reasonable progress factors and that the decision regarding the controls required to make reasonable progress and the establishment of the RPG must be based on these factors identified in the CAA section 169A(g)(1) and the Regional Haze regulations under §51.308(d)(1)(i)(A).

81 Fed. Reg. at 66,360. EPA's Regional Haze Rule revisions confirm that EPA must consider whether measures are needed at individual sources, whether subject to BART or not, to make reasonable progress at Class I areas:

If a State contains sources which are reasonably anticipated to contribute to visibility impairment in a mandatory Class I Federal area in another State for which a demonstration by the other State is required under (f)(3)(ii)(A), the State must demonstrate that there are no additional emission reduction measures for anthropogenic sources or groups of sources in the State that may reasonably be anticipated to contribute to visibility impairment in the Class I area that would be reasonable to include in its own long-term strategy. The State must provide a robust demonstration, including documenting the criteria used to determine which sources or groups of sources were evaluated and how the four factors required by paragraph (f)(2)(i) were taken into consideration in selecting the measures for inclusion in its long-term strategy.

40 C.F.R. § 51.308(f)(3)(ii)(B).

Second, EPA's trading scheme cannot substitute for a four-factor reasonable progress analysis because, unlike the BART provisions of the Clean Air Act and Regional Haze Rule, there are no statutory or regulatory exemptions that allow EPA to avoid conducting a separate reasonable progress analysis, which evaluates each of the four statutory reasonable progress factors. Indeed, while the Clean Air Act itself provides a narrow process for exempting eligible sources from a BART analysis, 42 U.S.C. § 7491(c), and the Regional Haze Rule allows states to adopt BART alternatives in narrow circumstances, 40 C.F.R. § 51.308(e)(2), there are no such exemptions or alternatives for reasonable progress. Instead, *every* plan must include enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve reasonable progress. *Id.* § 51.308(d)(3). And the Clean Air Act itself requires consideration of four factors--the cost of compliance, the time necessary for compliance, the nonair environmental quality impacts of compliance, and the source's remaining useful life—"in determining reasonable progress." 42 U.S.C. § 7491(g)(1).

Had Congress wanted to provide an exemption from the consideration of reasonable progress, it would have said so expressly. Instead, Congress included a separate definition for reasonable progress, which is one of the cornerstones of every haze plan. EPA lacks authority to

rewrite the statute to allow states to rely on a BART trading alternative in lieu of a consideration of the four statutory reasonable progress factors.

Even if EPA's Trading Rule was a proper BART alternative (which it is not), it does not exempt BART sources from emission control requirements to advance reasonable progress if they continue to cause or contribute to visibility impairment. 40 C.F.R. § 51.308(e). The Regional Haze Rule requires states to look beyond BART for additional emissions reductions that provide for "reasonable progress" toward 2064 natural visibility goal for Class I national parks and wilderness areas. 42 U.S.C. § 7491(b)(2)(B); 40 C.F.R. § 51.308(d).<sup>147</sup> Indeed, in *Utility Air Regulatory Group v. EPA*, 471 F.3d 1333 (D.C. Cir. 2006), the D.C. Circuit upheld EPA's "Better-than-BART" determination for CSAPR's predecessor, but the court in no way reduced the states' or EPA's authority and obligation to require updated pollution controls to ensure reasonable progress at each Class I area. The court stated:

[U]nless there is some reasonable excuse, [a regional haze plan's reasonable] progress must be sufficient to attain natural visibility conditions at every single Class I area by 2064. Indeed, EPA emphasized in its briefs that because 'the regulatory scheme as a whole (and all the regulations promulgated pursuant to it) must be designed to achieve the goal [of reasonable progress] at *every* Class I area,' states must, if CAIR is substituted for BART and is not likely to achieve that goal, take "other measures as necessary to achieve reasonable progress goals including at *each* Class I area."

*Id.* at 1340 (internal citations omitted); *see also* 70 Fed. Reg. at 39,138 n.73 ("The reasonable progress test in the Regional Haze Rule remains as a separate test from [CAIR's] better than BART" determination.). The court recognized that BART and "Better-than-BART" alternatives are merely one mechanism for achieving the Clean Air Act mandate of restoring natural visibility conditions to each Class I national park and wilderness area.

Separately, and for the reasons discussed here and above, EPA cannot simply rely on its flawed Q/d analysis as a substitute for conducting a four-factor reasonable progress analysis. As discussed, in "determining reasonable progress," EPA "shall" take into consideration four statutory reasonable progress factors. 42 U.S.C. § 7491(g)(1). EPA cannot sidestep that statutory obligation by pointing to a Q/d screening analysis for assessing visibility impacts to Class I areas. A simple Q/d analysis cannot be used in lieu of or to avoid a four-factor reasonable progress analysis, as required by the Clean Air Act and the Regional Haze Rule. Even if it could, EPA's Q/d analysis is fatally flawed, for the reasons discussed previously.

In sum, the Trading Rule does not and cannot satisfy EPA's statutory and regulatory obligation to address reasonable progress by evaluating the four statutory reasonable progress factors and determining the "emission limitations" at individual sources, whether subject to BART or not, that may be necessary to make reasonable progress. Nor has EPA has provided any reasoned basis for departing from the text of the statute, the Regional Haze Rule, and its

---

<sup>147</sup> Under section 51.308(e)(5) of the Regional Haze Rule, "[a]fter a State has met the requirements for BART or implemented emissions trading program or other alternative measure that achieves more reasonable progress than the installation and operation of BART, BART-eligible sources will be subject to the requirements of paragraph (d) of this section in the same manner as other sources."



prior interpretations. See *Encino Motorcars, LLC v. Navarro*, — U.S. —, 136 S. Ct. at 2125-26 (when an agency departs from its prior position, “the agency must at least ‘display awareness that it is changing position’ and ‘show that there are good reasons for the new policy’” (quoting *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009))); *FCC v. Fox Television Stations, Inc.*, 556 U.S. at 515 (“[T]he requirement that an agency provide reasoned explanation for its action would ordinarily demand that it display awareness that it is changing position. An agency may not, for example, depart from a prior policy sub silentio or simply disregard rules that are still on the books.” (emphasis in original)). EPA must address reasonable progress requirements to determine whether additional emission reductions are required from Texas EGUs and other sources—whether subject to BART or not—to make reasonable progress toward natural visibility.

**B. EPA Must Separately Evaluate and Establish Reasonable Progress Goals for all Class I Areas Affected by Texas Emissions to Ensure Reasonable Progress.**

The Trading Rule cannot be relied upon to satisfy the substantive requirements of the Regional Haze Rule’s long-term strategy and reasonable progress requirements for another reason: the issuance of a BART FIP does not negate EPA’s obligation to distinctly and specifically address the long term strategy and reasonable progress requirements outstanding for Texas’ first planning period regional haze obligations.<sup>148</sup> The D.C. Circuit has explained that the overarching mandate of the Clean Air Act and the Regional Haze Rule is a state-wide regional haze plan that achieves reasonable progress toward the 2064 natural visibility goal. *Util. Air Regulatory Group*, 471 F.3d at 1340; *Ctr. for Energy and Econ. Dev. v. EPA*, 398 F.3d 653, 660 (D.C. Cir. 2005).

To meet the 2064 goal, a full regional haze plan must include two critical components: BART limits *and* a long-term strategy to achieve reasonable progress toward that goal. 42 U.S.C. § 7491 (b)(2)(A) & (b)(2)(B); 40 C.F.R. § 51.308(d)(1), (d)(3), (e); *see also* 42 U.S.C. § 7491 (b)(2). In order to set the reasonable progress goals in the long-term strategy, EPA must, among other things, determine a “uniform rate of progress” required to meet that goal. 40 C.F.R. § 51.308(d)(1)(B). In particular, every regional haze plan must also include an evaluation of the rate of progress—and a determination of reasonable progress goals—needed to reach natural visibility conditions by 2064. *Id.* § 51.308(d)(1)(B). These goals are informed by, and based on, an evaluation of emission reductions available for major and minor sources under the four reasonable progress factors. If a state selects a reasonable progress goal that achieves a slower rate of progress than the rate of progress necessary to achieve natural visibility by 2064, the state must demonstrate, based on an evaluation of those four statutory reasonable progress factors, “that the rate of progress for the implementation plan to attain natural conditions by 2064 is not reasonable.” *Id.* § 51.308(d)(1)(ii).

Additionally, each state must “demonstrate that it has included in its implementation plan all measures necessary to obtain its share of the emission reductions needed to meet the progress goal for” any affected Class I area in *any other state*. *Id.* § 51.308(d)(3)(ii)-(iii). Specifically, the state “must consult” with any other state which “may reasonably be anticipated to cause or

---

<sup>148</sup> We do not suggest that EPA must conduct both a BART and reasonable progress analysis at the same time, and in the same rulemaking, but the agency cannot rely on the proposed Trading Rule as a substitute for satisfying reasonable progress.

contribute to visibility impairment” at a Class I area within the state, and “develop coordinated emission management strategies” to ensure reasonable progress toward the national goal in each Class I area that may be affected by the state’s emissions. *Id.* § 51.308(d)(1)(iv), (3)(i). Each state must then “document the technical basis, including modeling, monitoring and emissions information” to “demonstrate that it has included in its implementation plan all measures necessary to obtain its share of the emission reductions needed to meet the progress goal for” the affected Class I area. *Id.* § 51.308(d)(3)(ii)-(iii). In conducting this interstate consultation and establishing control measures that will achieve reasonable progress at all affected Class I areas, the state (or EPA where the state fails to do so) must consider the four statutory factors outlined in Section 169A(g)(1) of the Clean Air Act—“the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life” of any potentially affected sources. 42 U.S.C. § 7491(g)(1); *see also* 79 Fed. Reg. at 74,829 (explaining the interstate consultation provisions).

In disapproving Texas’s 2009 reasonable progress analysis, EPA concluded that Texas’s reasonable progress goals for Big Bend and Guadalupe Mountains violated applicable Clean Air Act requirements, in part, because the state failed to demonstrate, based on an evaluation of the four reasonable progress factors, that there were no additional emission reductions that could make greater reasonable progress toward natural visibility. Indeed, under Texas’s plan, natural visibility conditions would not be achieved until 2155 at Big Bend and 2081 at Guadalupe Mountains, or later. And Texas did not adequately explain, let alone include a technical evaluation of, why the 2064 natural visibility goal is not reasonable at Big Bend and Guadalupe Mountains, as the Regional Haze Rule requires. 40 C.F.R. § 51.308(d)(1)(ii).

EPA also concluded that Texas’s long-term strategy was based on a technically inadequate consultation with Oklahoma and did not require the control measures needed for reasonable progress at the Wichita Mountains. Indeed, as EPA explained in issuing its reasonable progress FIP, Texas sources cause significant visibility impairment at the Wichita Mountains Wilderness Area in Oklahoma that are “several times greater than the impact from Oklahoma’s own point sources.” 79 Fed. Reg. at 74,822. Texas sources also cause visibility impairment at Caney Creek Wilderness Area in Arkansas and many other out-of-state Class I areas, including, but not limited to, Carlsbad Caverns National Park, Bandelier National Monument, and the Salt Creek and White Mountain Wilderness Areas in New Mexico; Great Sand Dunes, Rocky Mountain, and Mesa Verde National Parks in Colorado; Upper Buffalo Wilderness Area in Arkansas; Hercules-Glades and Mingo Wilderness Areas in Missouri; and Breton Wilderness Area in Louisiana. *Id.* at 74,830.

Even if EPA’s Trading Rule was a proper BART alternative (which it is not), such a finding does not address or correct Texas’ flawed reasonable progress goals. Nor does it correct Texas’s failure to consult with Oklahoma, other states with affected Class I areas, or the Federal Land Managers to evaluate and include “all measures necessary to obtain its share of the emission reductions needed to meet the progress goal for” the affected Class I area. 40 C.F.R. § 51.308(d)(3)(ii)-(iii).<sup>149</sup> Nor does it exempt EPA from demonstrating, based on a consideration

---

<sup>149</sup> The Regional Haze Rule includes detailed consultation requirements, which require states and EPA, in issuing any implementation plan, to consult both with any state containing a Class I area affected by pollution from the state and the Federal Land Managers for any affected Class I national park or wilderness area to implement emission reductions and measures necessary to ensure reasonable progress. 40 C.F.R. § 51.308(d)(2)(iv), (d)(3)(i)-(iii) (consultation with affected states); *Id.* §51.308(i).

of the reasonable progress factors, that there are no additional measures or controls that could achieve reasonable progress toward the national 2064 visibility goal.

EPA's Trading Rule, on its face, fails to evaluate Texas' and Oklahoma's reasonable progress goals or to consider whether additional emission reductions (beyond BART for SO<sub>2</sub>) may be necessary to ensure reasonable progress. Although Texas and industry groups have argued that Texas and Oklahoma Class I areas have already achieved the reasonable progress goals that EPA established in its 2015 FIP, EPA has repeatedly and consistently taken the position that meeting a specific reasonable progress goal is not, itself, a "safe harbor," and does not relieve the state of the obligation to consider additional measures for reasonable progress.<sup>150</sup> If it is reasonable to make more progress than the URP, a state must do so, as EPA explained in the 1999 regional haze rule:

If the State determines that the amount of progress identified through the [URP] analysis is reasonable based upon the statutory factors, the State should identify this amount of progress as its reasonable progress goal for the first long-term strategy, unless it determines that additional progress beyond this amount is also reasonable. If the State determines that additional progress is reasonable based on the statutory factors, the State should adopt that amount of progress as its goal for the first long-term strategy.

64 Fed. Reg. at 35,732.

EPA's Trading Rule not only fails to evaluate reasonable progress as a whole, as required by the Regional Haze Rule, but EPA fails to evaluate how, in the absence of the SO<sub>2</sub> reductions no longer required under the agency's source-specific BART FIP or the 2015 reasonable progress FIP, Texas and Oklahoma will maintain a reasonable rate of progress toward restoring natural visibility conditions. Indeed, even under EPA's 2015 reasonable progress FIP and its proposed BART FIP, which would have required significant emission reductions (rather than the emission increases that would be allowed under EPA's proposed trading scheme), Wichita Mountains still would not reach natural visibility for another 82 years. 79 Fed. Reg. at 74,843, 74,887. Meanwhile, even with EPA's previous BART and reasonable progress FIPs, which required hundreds of thousands of tons SO<sub>2</sub> reductions in comparison to the Trading Rule, Big Bend and Guadalupe Mountains will not achieve natural visibility conditions for another 173 years and 151 years, respectively, at the earliest. *Id.* And EPA does not explain how this Trading Rule, which fails to require any pollution reductions and, instead, allows for increases in pollution compared to actual 2016 and 2017 emissions, and compared to the Texas reasonable progress or source-specific BART FIPs, would somehow ensure "reasonable" progress toward

---

Here, there is no evidence in the record that EPA consulted with any state or Federal Land Manager in developing the Trading Rule, or to meet the reasonable progress requirements of the Regional Haze Rule. Although EPA consulted with the Federal Land Managers in implementing CSAPR and in proposing the 2016 source-specific BART FIP, the agency cannot rely on consultations for different rules—which were based on different emission reductions and different analyses—to satisfy their obligation to consult with states and Federal Land Managers for implementation plans or revision. 40 C.F.R. §51.308(a).

<sup>150</sup> See, e.g., 64 Fed. Reg. 35,732 (preamble to the Regional Haze Rule); 77 Fed. Reg. at 11,847 (noting that states are "required to do more than establish RPGs that meet or exceed the URP"); 81 Fed. Reg. at 66,361 (final Arkansas Regional Haze Federal Implementation Plan).

natural visibility.<sup>151</sup> EPA also fails to mention, let alone evaluate, the effect the agency's proposed revisions of various air quality rules—including the planned rollback MATS Rule, its refusal to update CSAPR, and planned revisions to the SO<sub>2</sub> and ozone NAAQS implementation rules—will have on visibility or the ability of Texas' and other states affected Class I areas to make reasonable progress toward the national goal. It is arbitrary and unlawful for EPA to rely on those rules as part of its baseline assumptions, while simultaneously planning to revise or withdraw them.

**C. A Proper Reasonable Progress Analysis Makes Clear that Additional Emission Reductions from Texas EGUs are Cost-Effective and Necessary to Improve Visibility at Texas and Oklahoma Class I Areas.**

EPA's statutory obligation to reevaluate Texas' and Oklahoma's reasonable progress goals—and to require any additional, cost-effective emission limitations for individual Texas EGUs that are necessary to make reasonable progress—is not merely academic. Nor can EPA satisfy that statutory obligation by pointing to the unlawful Trading Rule, which would not require any emissions reductions at all. 83 Fed. Reg. at 43,597. Even if EPA's trading scheme was lawful (it is not), the agency must still conduct a four-factor reasonable progress analysis, as discussed above.

On January 5, 2016, EPA did just that, and issued a final FIP that fully evaluated and applied the Clean Air Act's reasonable progress factors and proposed technically feasible and cost-effective SO<sub>2</sub> emission limitations for 15 Texas EGUs. 81 Fed. Reg. 296.<sup>152</sup> The 2016 reasonable progress rule was supported by detailed, source-specific analyses of the cost of SO<sub>2</sub> controls, the level of control achievable by different technologies, estimated emissions reductions, and detailed modeling projections of the visibility improvement from operation of such controls. *See generally id.*; 79 Fed. Reg. 74,818 (proposed rule); Reasonable Progress FIP TSD; *see also* Report of Dr. H. Andrew Gray, attached as Ex. 18 Report of Victoria Stamper, attached as Ex. 19 ("April 2015 Stamper Report").

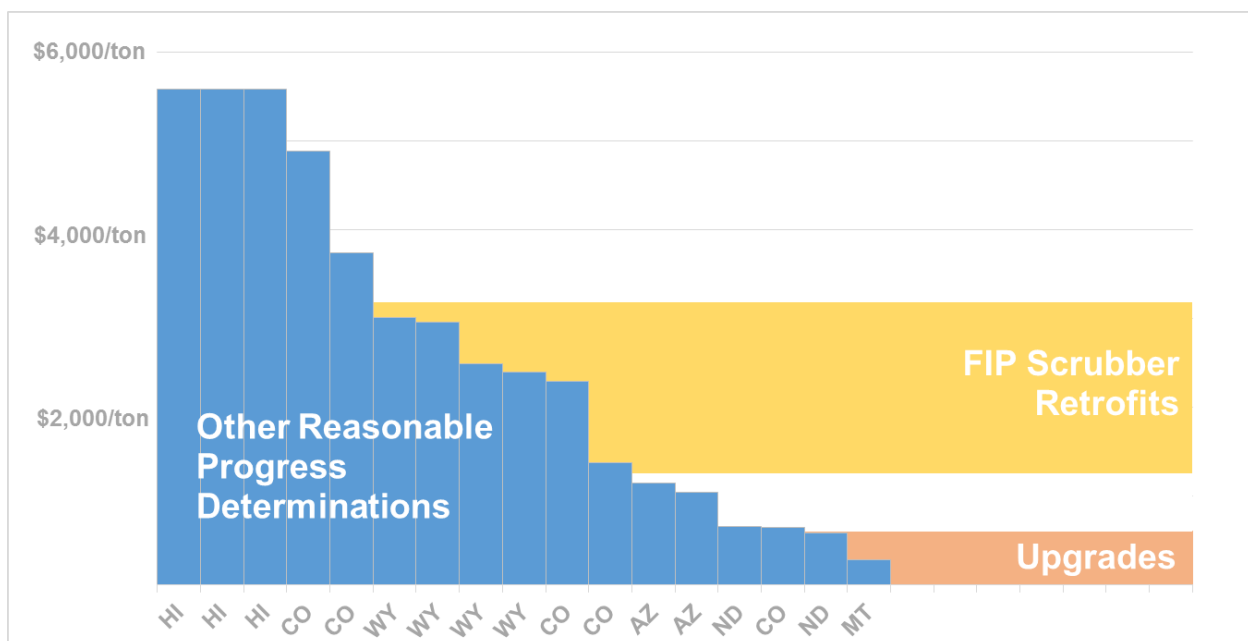
As that 2016 FIP rulemaking record makes clear, there are, in fact, additional emission reductions from many of Texas's largest and most polluting EGUs that are cost effective and necessary to improve visibility at Texas and Oklahoma Class I area. We will not repeat EPA's

---

<sup>151</sup> Moreover, as discussed above, the Trading Rule actually allows each active unit—and some retired units—to emit more emissions than under the 2017 rule or under EPA's 2015 reasonable progress SIP. It is not clear how EPA can allow overall emissions to go up and still comply with the basic reasonable progress requirements of the Regional Haze Rule. Under the regulations, EPA may not adopt a reasonable progress goal that represents less visibility improvement than is expected to result from implementation of other requirements of the Clean Air Act during the applicable planning period. 40 C.F.R. § 51.308(d)(1)(vi). By allocating emission credits to units that have already retired and relinquished their operating permits, or by reallocating those retired credits to other sources, EPA would necessarily be allowing less visibility improvement than is expected to result from already enforceable provisions of the Act—namely, the requirement that unpermitted sources not emit any pollutants.

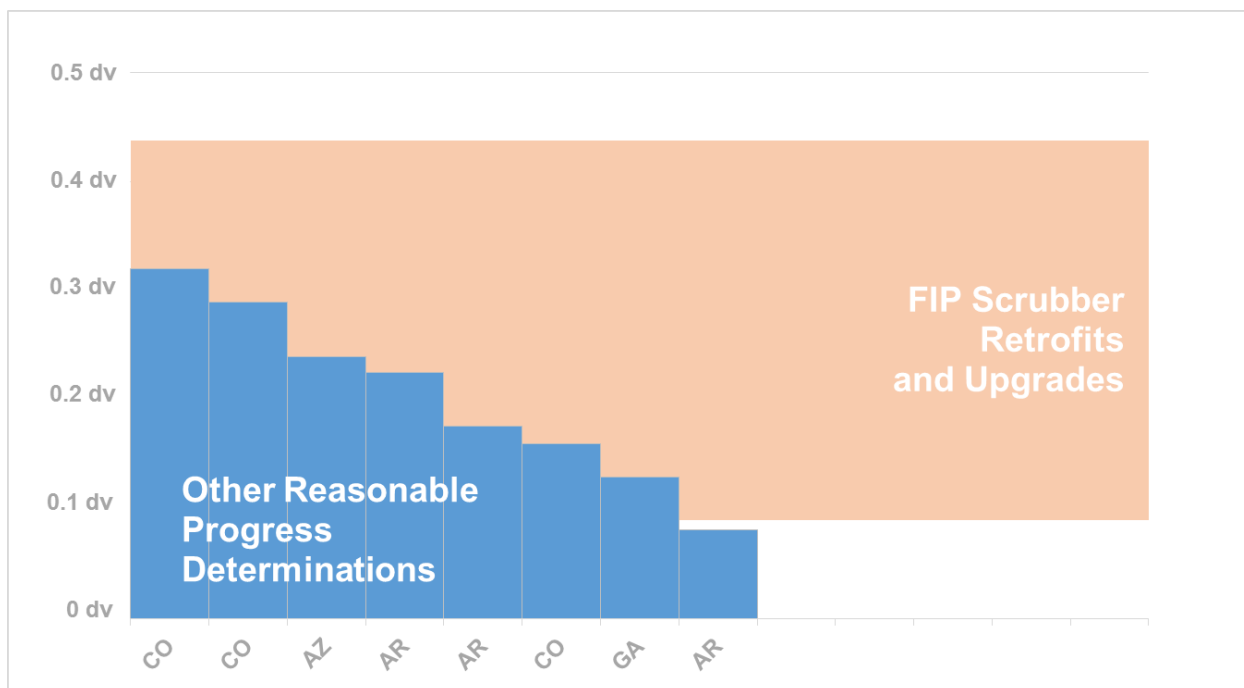
<sup>152</sup> As discussed, the Clean Air Act requires EPA and states to consider "emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward the national goal." 42 U.S.C. § 7491(b)(2). When determining reasonable progress, the states and EPA must analyze four statutory factors: "(1) the costs of compliance, (2) the energy and non-air quality environmental impacts of compliance, (3) existing pollution controls at the source, and the (4) the remaining useful life of the source." *Id.* § 7491(g)(1) (emphasis added); 40 C.F.R. § 51.308(d)(1)(i)(A), (d)(3).

entire reasonable progress analysis here—or restate our comments demonstrating that that analysis was reasonable and complied with the Clean Air Act’s statutory and regulatory requirements—but even a cursory review of EPA’s reasonable progress rule makes clear that additional emission reductions at several Texas EGUs would be cost effective and would result in significant pollution reductions and corresponding visibility improvements at affected Class I areas.<sup>153</sup> For example, as EPA found in its reasonable progress and BART analyses (and as the Conservation Organizations demonstrated in the attached comments), additional emission reductions and associated SO<sub>2</sub> control retrofits or upgrades at many of Texas’s largest and highest-polluting coal-burning EGUs would be well within the range of costs that EPA and states have found reasonable.



<sup>153</sup> We attach and incorporate our comments (Earthjustice, NPCA, and Sierra Club, Docket ID No. EPA-R06-OAR-2014-0754, Comments on the Proposed Rule for Texas and Oklahoma (Apr. 20, 2015), Docket ID No. EPA-R06-OAR-2014-0754-0067, *available at* <https://www.regulations.gov/document?D=EPA-R06-OAR-2014-0754-0067>, attached as Ex. 20), the technical reasonable progress analysis of Vicki Stamper, and EPA's Technical Support documents in EPA Docket No. EPA-R06-OAR-2014-0754.

*Reasonable Progress FIP Visibility Benefits Versus Other States<sup>155</sup>*



EPA’s proposed source-specific BART determinations were the minimum set of controls necessary for Texas to meet the BART requirements of the Regional Haze Rule. But implementing a BART rule does not obviate EPA’s obligation to go beyond BART and to require additional “emission limits . . . and other measures as may be necessary to make reasonable progress toward meeting the national goal.” 42 U.S.C. § 7491(b)(2). This is especially true where, as here, EPA proposes to abandon and replace its previous source-specific BART proposal with a trading rule that fails to require any emission reductions.

Even if EPA adopts the Trading Rule in lieu of its previously proposed source-specific BART FIP (which would be unlawful for the reasons above), the agency must still evaluate and adopt measures to ensure reasonable progress and protect air quality in affected Texas and out-of-state Class I national parks and wilderness areas. As the figures above make clear, there are technically-feasibly and cost-effective emission limits and measures that—with or without source-specific BART—are necessary to ensure reasonable progress toward the national visibility goal. In particular, as EPA found in its reasonable progress rulemaking, there are cost-effective controls available for 14 units located at eight coal-fired power plants that would significantly improve visibility at Class I areas across the central United States. If EPA abandons its source-specific BART Rule, EPA’s already-finalized and reasonable progress FIP represents a minimum floor for remedying the deficiencies in both Texas and Oklahoma’s regional haze plans. Those progress goals are unreasonable, at a minimum, in light of the agency’s recognition of available, cost-effective measures at additional facilities, which would achieve a greater rate of progress

<sup>155</sup> NPCA, “TX Haze EPA Presentation.ppt” at slide 14 attached as Ex. 21 and NPCA, Data from “Slide graphics 4.xlsx” at tab 2, “Visibility,” attached as Ex. 22.

toward the 2064 natural visibility goal at Wichita Mountains, Big Bend, and Guadalupe Mountains.

EPA's 2016 reasonable progress FIP is consistent with the Clean Air Act, the Regional Haze Rule, and reasonable progress plans that other states and EPA have finalized. The reasonable progress FIP is amply supported by a voluminous record and detailed and technically justified cost and visibility analyses that comply with the requirements of the Regional Haze Rule.

Moreover, EPA's 2016 FIP ensures greater reasonable progress toward natural visibility than Texas' plan, which relied entirely on CAIR emission reductions to satisfy its reasonable progress obligations. Indeed, in contrast to Texas' plan, the reasonable progress FIP would reduce 230,000 tons of sulfur dioxide annually, 81 Fed. Reg. at 298, 305, and would improve visibility in nineteen national parks and wilderness areas in seven different states, including Texas and Oklahoma.<sup>156</sup> Moreover, EPA's plan would achieve natural visibility at Guadalupe Mountains approximately 25 years sooner and at Big Bend approximately 30 years sooner than Texas's CAIR-as-reasonable-progress SIP. *Id.* at 323.

EPA has not questioned the validity of, or identified any errors in, any of its individual, source-specific reasonable progress determinations in the 2016 FIP. Nor EPA has not attempted to demonstrate that its proposed intrastate trading scheme would achieve greater reasonable progress than its 2016 reasonable progress rule. Consequently, EPA cannot simply replace its reasonable progress FIP with reliance on the proposed trading scheme.

Even if EPA's Trading Rule achieved *some* reductions from BART-eligible Texas EGUs (which, as explained throughout these comments, it would not), the program, by its express terms, does not evaluate reductions for an appreciable portion of Texas's SO<sub>2</sub> emissions. 83 Fed. Reg. at 43,591 ("Covered sources under the BART alternative in this FIP represent 89% of all from all Texas EGUs"). Moreover, as discussed previously, EPA actually allocated more emission credits to many sources than they would typically and collectively be expected to use. EPA must evaluate those units for additional controls or reductions under reasonable progress.

Finally, even taking into consideration EPA's 2016 reasonable progress FIP and the subsequent BART proposal—both of which show that additional controls are reasonable and cost-effective for many coal-burning Texas EGUs—EPA has never conducted any kind of control analyses for a number of Texas's largest sources coal-burning power plants for possible SO<sub>2</sub> control upgrades, including Oklaunion, Pirkey, Oak Grove Units 1 and 2, Twin Oaks Units 1 and 2, J.K. Spruce, Gibbons Creek, and Sandy Creek. This suggests that there may be other

---

<sup>156</sup> In the reasonable progress rulemaking docket, EPA evaluated the visibility impacts of Texas EGUs in Texas at nineteen different Class I areas, including: Breton Wilderness Area in Louisiana; Big Bend and Guadalupe Mountains National Parks in Texas; Wichita Mountains National Wildlife Refuge in Oklahoma; Caney Creek and Upper Buffalo Wilderness Areas in Arkansas; Bandelier National Monument, Salt Creek, Wheeler Park, White Mountains, and Pecos Wilderness Areas, Carlsbad Caverns National Park, San Pedro National Park, Bosque del Apache Wilderness Area, and Gila Wilderness Area in New Mexico; Hercules-Glades Wilderness Area and Mingo National Wildlife Refuge in Missouri; and Great Sand Dunes National Park and Rocky Mountain National Park in Colorado. *See* Reasonable Progress FIP TSD at "TX116-007-33 Vis modeling summary; *see also* 79 Fed. Reg. at 74,854-55 (noting Class I areas impacted by Texas emissions).

potentially significant SO<sub>2</sub> reductions available to ensure reasonable progress. In sum, a rational, four-factor reasonable progress—such as the 2016 FIP rulemaking, which is supported by a voluminous record—makes clear that additional emission reductions from Texas EGUs are both cost effective and necessary to improve visibility at Texas and Oklahoma Class I areas.

**D. EPA Cannot Rely on the Trading Rule to Satisfy Reasonable Progress Without Additional Notice and Comment.**

EPA cannot rely on the trading scheme to satisfy its independent reasonable progress obligations for aforementioned reasons. The agency hints that it may find that the Trading Rule also satisfies distinct reasonable progress requirements however does so without conducting additional analysis or expressly stating that it is noticing and taking comment on the Trading Rule as a rulemaking that could satisfy the Regional Haze Rule's reasonable progress provisions. Under the Clean Air Act, a FIP cannot be *adopted or revised* without following public notice and comment procedures set forth in 42 U.S.C. § 7607(d). *See* 42 U.S.C. § 7607(d)(1)(B), (d)(2)-(6). Among other requirements, EPA must first publish a proposed rule or revision in the Federal Register that is accompanied by a statement of basis and purpose and specifies a comment period. *Id.* § 7607(d)(3). The statement of basis and purpose must include a summary of the factual data on which the proposed rule is based, the methodology used in obtaining and analyzing the data, and the major legal interpretations and policy considerations underlying the proposed rule. *Id.* EPA must allow any person to submit comments, and in addition, shall give interested persons an opportunity for the oral presentation of data, views, or arguments. *Id.* § 7607(d)(5). These and other public participation requirements in §7607(d) build on those in the Administrative Procedure Act, and are even more protective of notice and comments rights.

In December 2015, EPA issued a final rule approving in part and disapproving in part Texas's regional haze plan, including provisions of the state's reasonable progress analysis, as well as portions of Oklahoma's "interconnected" plan. *See* 81 Fed. Reg. 296. As required by the Clean Air Act, 42 U.S.C. § 7410(c)(1), EPA issued a partial federal plan to correct the deficiencies in Texas's submittal. 81 Fed. Reg. at 297. In July 2016, however, the Fifth Circuit stayed EPA's disapproval and promulgation of the FIP addressing the reasonable progress portions of Texas's Regional Haze plan. *See Texas*, 829 F.3d 405. The Fifth Circuit subsequently granted EPA's motion requesting a voluntary remand of the rule so that the agency could reconsider its reasonable progress determinations, which, as EPA has recognized, are separate and independent from the BART requirements at issue here. *See* 83 Fed. Reg. at 43,595 n.63 (noting "outstanding obligations with respect to reasonable progress that resulted from the Fifth Circuit's remand of our reasonable progress FIP").

Although EPA's reasonable progress FIP has been stayed and remanded, EPA must comply with the Clean Air Act's procedural and substantive requirements before issuing a replacement plan to satisfy the reasonable progress requirements. In particular, EPA must conduct the four-factor reasonable progress analysis outlined above and must then publish any proposed reasonable progress rule revision, and allow for public comment. EPA must also include a summary of the factual data on which the proposed rule is based, the methodology used in obtaining and analyzing the data, and the major legal interpretations and policy considerations underlying the proposed rule as well as the rationale behind any departure from prior rulemakings or interpretations. For these reasons, EPA cannot simply rely on its Trading Rule to



satisfy reasonable progress, but must instead consider the four statutory reasonable progress factors and require reasonable emissions reductions making clear what it is proposing as a rulemaking and engage in additional notice and comment before issuing any such rule.

## **IX. REQUIRING SOURCE-SPECIFIC POLLUTION CONTROLS WOULD NOT THREATEN GRID RELIABILITY.**

When EPA imposed source-specific emission limits for Texas power generators in the past, industry and the State of Texas warned that if coal-fired power plants had to comply with these limits, some operators would be forced to retire and the reliability of Texans' electricity supply would suffer as a result.<sup>157</sup> These claims – which Commenters had challenged as overblown, misleading, and legally irrelevant at the time – have now been definitively refuted by events that have unfolded in the past several years.<sup>158</sup> By contrast, EPA's determination that the electric grid was robust enough to accommodate coal plant retirements in favor of cleaner energy<sup>159</sup> has proven correct. Despite the retirement of over 4 gigawatts of coal-fired power plants in early 2018, the Texas electricity grid has not experienced reliability problems, nor have prices been impacted. Given this history, EPA should be highly suspicious of any scaremongering about grid failures, rolling blackouts, or higher prices that would purportedly occur if EPA establishes source-specific BART on coal-fired power plants or other sources, as is legally required.

First, several of the plants that would have been subject to source-specific limits in earlier iterations of the Texas regional haze rule retired *without source-specific emission limits ever going into effect*.<sup>160</sup> Luminant,<sup>161</sup> the plants' owner, pointed to competition in the energy marketplace as the driver for the retirement decisions (just as Commenters and their consulting experts had predicted). Further, upon Luminant's notification of its intent to retire Monticello, Big Brown, and Sandow, ERCOT evaluated the reliability impacts of retiring plants and found that none of the generating units was "required to support ERCOT transmission system reliability."<sup>162</sup> The ERCOT grid has not encountered any reliability issues following these

---

<sup>157</sup> See, e.g., Luminant Mot. to Stay at 19 and Tex. Mot. to Stay at 17-18, *Texas v. EPA*, No. 16-60118 (5th Cir.).

<sup>158</sup> As set forth in NPCA and Sierra Club's May 5, 2017 comments in this docket (Doc. No. TX187.083 at 45-46), and in our opposition to Petitioners' Motions to Stay in *Texas v. EPA*, *supra*, Commenters maintain the position that EPA cannot lawfully consider "grid reliability" writ large in its BART determination. We incorporate those arguments by reference here. We nonetheless provide factual information on grid reliability in Texas since it is something EPA has considered in the past.

<sup>159</sup> See 81 Fed. Reg. at 345; Legal RTC at 833-37 and Attach. 131 (Synapse Report - ERCOT\_Report\_Review\_Memo\_20150908.pdf).

<sup>160</sup> Luminant to Retire Two Texas Power Plants, <https://investor.vistraenergy.com/investor-relations/news/press-release-details/2017/Luminant-to-Close-Two-Texas-Power-Plants/default.aspx> (retirement of Big Brown and Sandow) (October 13, 2017); Luminant Announces Decision to Retire Its Monticello Power Plant (October 6, 2017), <https://www.luminant.com/luminant-announces-decision-retire-monticello-power-plant/>.

<sup>161</sup> At the time that these retirement announcements were made, the owner was Luminant. The parent company of Luminant is now Vistra, which merged with Dynegy.

<sup>162</sup> See ERCOT Notices of Final Determinations for Luminant Generation Co., LLC, Monticello Units 1, 2, & 3; Sandow Units 4 & 5; and Big Brown Units 1 & 2, attached as Ex. 23 (finding in each case that "this Generation Resource is not required to support ERCOT transmission system reliability.").

retirements of Luminant plants and has adequate resources to meet Texas's needs.<sup>163</sup> This is despite the summer of 2018 being one of the hottest on record, and new records set for peak electricity demand.<sup>164</sup> Further rebutting claims that preventing the retirement of BART subject coal-fired power plants is essential to a reliable grid, ERCOT's latest study of energy capacity, demand, and reserves (which followed the Luminant retirement announcements) predicts healthy reserve margins through the endpoint of the study in 2023, due in large part to large additions of wind and solar.<sup>165</sup>

In sum, even if grid reliability were a relevant consideration under BART (which we do not concede that it is), it is clear that EPA must not accept at face value industry's self-serving claims that requiring plants to meet the emission limits required by source-specific BART would threaten grid reliability, especially given the overwhelming evidence that it would not.

## **X. THE TRADING RULE IS BASED ON A DETERMINATION OF NATIONWIDE SCOPE AND EFFECT.**

If EPA ignores the Clean Air Act requirements set forth above, and insists on retaining its intrastate trading program, the agency must publish a finding that the Trading Rule "is based on a determination of nationwide scope or effect." 42 U.S.C. § 7607(b)(1). Such a finding is necessary because the Trading Rule is plainly based on such a determination, and should be reviewed in the United States Court of Appeals for the District of Columbia.

The Clean Air Act sorts petitions for review of EPA actions into three categories based on whether the challenged regulation is: (1) nationally applicable; (2) locally or regionally applicable; or (3) locally or regionally applicable but based on a determination of nationwide scope or effect, provided that "the Administrator finds and publishes that such action is based on such a determination." 42 U.S.C. § 7607(b)(1). While petitions to review locally or regionally applicable regulations must be brought in the relevant regional circuit court, "the Act lays exclusive venue in the D.C. Circuit for review of regulations that either apply nationally or apply locally but have nationwide scope or effect." *Id.*; *Texas v. EPA*, 2011 U.S. App. LEXIS 5654 at \*11 (5th Cir. Feb. 24, 2011).

As explained below, EPA must make a formal determination that the Trading Rule is based on a determination of nationwide scope and effect. First, in comparing the Trading Rule to the Better than BART Rule to purportedly satisfy the requirements of 40 C.F.R. § 51.308(e), EPA has reinterpreted an established and nationally applicable law. Second, EPA's unlawful interpretation of 40 C.F.R. § 51.308(e) amounts to a revision of a nationally applicable regulation. Therefore, EPA has an obligation to publish a finding in the Federal Register that the

---

<sup>163</sup> See, e.g., Chris Tomlinson, *Texas electric grid did just fine without coal-fired power plants*, Houston Chronicle (Sept. 14, 2018), <https://www.houstonchronicle.com/business/columnists/tomlinson/article/Texas-electric-grid-did-just-fine-without-13229492.php>; See also U.S. Energy Information Administration, *Coal plant retirements and high summer electricity demand lower Texas reserve margin* (July 2, 2018), <https://www.eia.gov/todayinenergy/detail.php?id=36593>.

<sup>164</sup> *Id.*

<sup>165</sup> ERCOT, Capacity Demand and Reserves Report (May 2018), available at <http://www.ercot.com/gridinfo/resource>.

Trading Rule is based on a determination of nationwide scope or effect, along with a statement that any challenge to the Trading Rule should be filed in the D.C. Circuit.<sup>166</sup>

**A. In Comparing the Trading Rule to the Better than BART Rule, EPA Has Unlawfully Reinterpreted 40 C.F.R. § 51.308(e).**

Under the Clean Air Act and EPA's implementing regulations, a state may adopt an emissions trading program or an alternative measure only if a state can demonstrate that the alternative program makes greater reasonable progress than would be achieved through the installation and operation of BART. 40 C.F.R. § 51.308(e)(2). In support of such a proposal, the state must submit a demonstration that its proposed trading program would "achieve greater reasonable progress than would have resulted from the installation and operation of BART at all sources subject to BART in the State" based on a source-specific or, in limited cases, a category-wide determination of BART for each source. *Id.* § 51.308(e)(2)(i)(C). In other words, a proposed BART alternative must be evaluated in comparison with BART, not another BART alternative.

However, in proposing the Trading Rule, EPA has effectively reinterpreted 40 C.F.R. § 51.308(e)(2) to allow for a proposed BART alternative to be justified through a comparison to another BART alternative, rather than BART. This unlawful reinterpretation of an established regulation is not only nationally applicable, but would also have nationwide scope and effect, as EPA and states could take the same approach in other states of comparing one BART alternative to another in conflict with the plain language of 40 C.F.R. § 51.308(e)(2). If EPA is proposing a new interpretation of the BART alternative regulations such that a BART alternative can be approved if it makes greater reasonable progress than another BART alternative, rather than the current language which requires finding that a BART alternative makes greater reasonable progress than BART, EPA must clarify its proposal and provide a rationale for interpreting the regulations contrary to their plain meaning.

---

<sup>166</sup> In these comments, we do not challenge CSAPR itself or EPA's Better than BART Determination. Instead, we note only that the Trading Rule is, in fact, based on those rules, which are nationally applicable and determinations of nationwide scope and effect. As discussed above, however, we dispute EPA's interpretation of the Better than BART Determination as applied to this intrastate, non-CSAPR Trading Rule.

**B. EPA’s Unlawful Interpretation of 40 C.F.R. § 51.308(e) Amounts to a Revision of a Nationally Applicable Regulation and is Subject to the Clean Air Act’s Rulemaking Requirements.**

If it is now EPA’s position that a BART alternative can be lawfully compared to another BART alternative, which is in direct contrast to the current language and application of 40 C.F.R. § 51.308(e)(2), then EPA much justify this revision to the rule through the rulemaking process. Under the Clean Air Act, EPA must follow rulemaking procedures for any promulgation or *revision* of regulations relating to the prevention of significant deterioration of air quality and protection of visibility. 42 U.S.C. § 7607(d)(1)(J) (*emphasis added*). As part of this process, EPA must publish a notice of proposed rulemaking in the Federal Register to allow interested persons an opportunity to comment on the proposed amendment. 42 U.S.C. § 7607(d)(3). This proposed rulemaking would have nationwide scope and effect, as it would apply to all states. Therefore, the proper venue for any litigation related to this proposed rulemaking, including the need for EPA to publish a notice of proposed rulemaking, would be the D.C. Circuit.

**C. The Proper Venue for Subsequent Legal Challenges to the Trading Rule Would be the D.C. Circuit even if EPA Fails to Publish a Determination of Nationwide Scope or Effect.**

Even if EPA fails to publish a finding that the Trading Rule is based on a determination of nationwide scope or effect (and fails to withdraw this unlawful Trading Rule), subsequent legal challenges will still be properly venued in the D.C. Circuit pursuant to 42 U.S.C. § 7607(b)(1). While the EPA Administrator has authority to publish a finding that an action is based on a determination of nationwide scope or effect, this authority is not unreviewable. *Nat’l Env’tl. Dev. Ass’n Clean Air Project v. EPA*, 891 F.3d 1041, 1053 (D.C. Cir. 2018) (Silberman, J., concurring). Similarly, a failure of EPA to make such a determination in “an appropriate case could also be challenged by a party with standing . . . so long as it had first petitioned EPA to publish the necessary finding.” *Id.* Nonetheless, EPA should make an explicit finding of nationwide scope and effect to avoid the delay and expense of potential venue disputes.

For the reasons explained throughout this petition, EPA should withdraw the Trading Rule and finalize the source-specific BART determinations required by the Regional Haze Rule. Nevertheless, if the agency refuses to withdraw the Trading Rule, the agency must, consistent with 42 U.S.C. § 7607(b)(1), publish a finding that this Rule is based on a determination of nationwide scope or effect.

**CONCLUSION**

For the reasons described above, both the 2017 final Trading Rule and the 2018 proposed Trading Rule violate the Clean Air Act and implementing regulations, are arbitrary and capricious, and are otherwise unlawful. EPA must withdraw the 2017 Trading Rule, update and repropose the January 2017 source-specific BART proposal, and finalize source-specific BART determinations for Texas sources.

Sincerely,

Matthew Gerhart  
Sierra Club Environmental Law Program  
1536 Wynkoop St., Suite 200  
Denver, Colorado, 80202  
matt.gerhart@sierraclub.org

Joshua Smith  
Elena Saxonhouse  
Sierra Club Environmental Law Program  
2101 Webster Street, Suite 1300  
Oakland, CA 94612  
joshua.smith@sierraclub.org  
elena.saxonhouse@sierraclub.org

Shannon Fisk  
Lauren Piette  
Earthjustice  
1617 John F. Kennedy Blvd., Suite 1130  
Philadelphia, PA 19103  
sfisk@earthjustice.org  
lpiette@earthjustice.org

Stephanie Kodish  
Nathan Miller  
National Parks Conservation Association  
706 Walnut Street, Suite 200  
Knoxville, TN 37902  
(856) 329-2424 ext. 28  
skodish@npca.org  
nmiller@npca.org

Graham McCahan  
Liana James  
Environmental Defense Fund  
2060 Broadway, Ste 300  
Boulder, CO 80305  
(303) 440-4901  
gmccahan@edf.org  
ljames@edf.org

**EPA-R06-OAR-2016-0611**

**List of Exhibits Accompanying Comments Submitted by Earthjustice, National Parks Conservation Association, Sierra Club, and Environmental Defense Fund on  
October 26, 2018.**

<b>Exhibit Number</b>	<b>File Name</b>
1	Exhibit 1_2017 AMPD Emissions.xlsx
2	Exhibit 2_2017 AMPD Emissions 2.xlsx
3	Exhibit 3_Reasonable Progress FIP TSD.pdf
4	Exhibit 4_Understanding Haze in Big Bend NP.pdf
5	Exhibit 5_Earthjustice SC NPCA_TX BART Comments 5-5-2017.pdf
6	Exhibit 6_Trading Rule Unit Emissions.xlsx
7	Exhibit 7_Cost-effectiveness of Historical BART Determinations.xlsx
8	Exhibit 8_V.B._SandowO54 Void letter.pdf
9	Exhibit 9_V.B_AIR OP_65-27695.pdf
10	Exhibit 10_V.B_O64 Monticello Void.pdf
11	Exhibit 11_Change to TX BtB-50k SO2 Addition-revised.xlsx
12	Exhibit 12_EPA SO2 BART updated allocations CSAPR methodology.xlsx
13	Exhibit 13_Deely Operations To Be Suspended Indefinitely in 2018.pdf
14	Exhibit 14_Welsh Power Plant Retrofit Project.pdf
15	Exhibit 15_Luminant Announces Decision to Retire Its Monticello Power Plant - Luminant.pdf
16	Exhibit 16_Luminant to Close Two Texas Power Plants - Luminant.pdf
17	Exhibit 17_Stamper TX BART TSD_May 3 2017.pdf
18	Exhibit 18_FINAL GRAY REPORT + CV.pdf
19	Exhibit 19_FINAL STAMPER REPORT_April 2015.pdf

20	Exhibit 20_Comments_of_Earthjustice_et al on RP FIP for TX and OK (EPA-R06-OAR-2014-0754-0067).pdf
21	Exhibit 21_TX Haze EPA Presentation.pptx
22	Exhibit 22_Slide graphics 4.xlsx
23	Exhibit 23_ERCOT_Big Brown, Monticello, Sandow 4 & 5 Evaluations.pdf